# AMERICAN AGRICULTURIST

FOR THE

## Farm, Garden, and Household.

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

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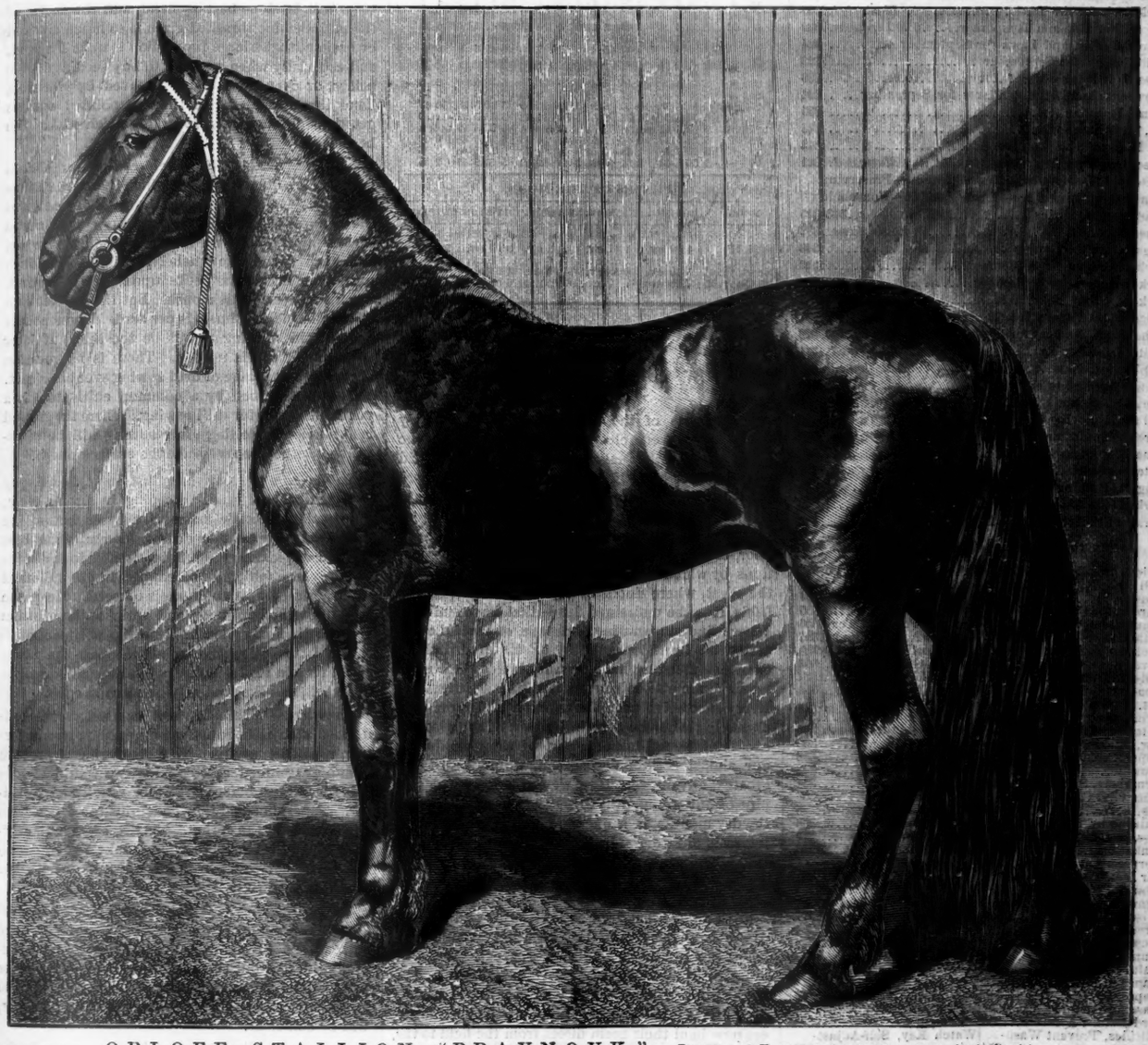

ORLOFF STALLION "PRAVNOUK."—*Drawn and Engraved for the American Agriculturist.*

A short time ago Mr. Mœrder, Secretary of the General Directory of the Imperial Studs of Russia, sent to the editor of the "Turf, Field and Farm," of New York, a number of photographs of trotting horses of the Orloff breed. Through the courtesy of the "Turf, Field and Farm," we are able to give the accompanying portrait of a famous stallion of this breed, which is copied from one of the photographs sent by Mr. Mœrder. The excellence of these photographic portraits should set at rest those objectors, who pretend that no accurate, life-like portrait of an animal can be procured by photography. Although there are some unavoidable seeming distortions of parts of the figure in a photograph, yet these so readily adapt themselves to the eye of the intelligent observer—just as the seeming inaccuracies of a perspective view of a building are recognized and understood—that a photograph is a far more satisfactory manner of "holding the mirror up to natnre," than the majority of drawings or paintings would be, unless done with perfect fidelity and great skill. In the photograph we see the animal as it is, which should be in every way satisfactory to those who would so represent it. In the *American Agriculturist* for August (page 294) reference is made to this breed of horses, and some information given as to their breeding and character. Mr. Mœrder has written a pamphlet upon "The Russian Trotter," in which the history and achievements of these horses are set forth in a full and interesting manner. No horse is considered as a pure Orloff, unless he has descended directly from an Arabian horse, "Smetanka," which was the founder of the race. This horse possessed an extra pair of ribs, and his skeleton is still preserved in the museum at St. Petersburg. The stallion here represented is "Pravnouk," in color brown-bay, age 16 years, hight 16½ hands, and raised in the stud of Mr. Divov. This stallion is now serving in the stud of Mr. Pavlov. It is this breed which is used in the production of a class of horses, now in demand in Russia for carriage horses.

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**Composting Pond Mud.**—"G. J. F.," Phillipsburg, N. J. To compost pond mud it is proper to throw it in piles upon the bank to drain, and when it is only moist, and not *wet*, to mix it in layers with barn-yard manure, and if desired, with lime. If one load of coarse stable manure, one bushel of lime, and five loads of the drained mud, are evenly mixed and left to decompose, there will be no loss of ammonia, as the mud will absorb all that is set free from the manure. The heap should be made about four feet high, flat, and slightly hollow upon the top, to hold all the rain that may fall.

## Calendar for September.

| Day of Month. | Day of Week. | Boston, N'England, N. York State, Michigan, Wisconsin, Iowa, and Oregon. Sun rises. | Sun sets. | Mo'n sets. | N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois. Sun rises. | Sun sets. | Mo'n sets. | Washington, Maryland, Virginia, Kentucky, Missouri, and California. Sun rises. | Sun sets. | Mo'n sets. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | H. M | H. M | H. M. | H. M | H. M | H. M. | H. M | H. M | H. M. |
| 1 | F | 5 24 | 6 35 | 2 55 | 5 27 | 6 33 | 3 0 | 5 29 | 6 31 | 3 5 |
| 2 | S | 5 26 | 6 33 | 4 0 | 5 28 | 6 31 | 4 4 | 5 30 | 6 29 | 4 7 |
| 3 | S | 5 27 | 6 32 | rises | 5 29 | 6 30 | rises | 5 31 | 6 28 | rises |
| 4 | M | 5 28 | 6 30 | 6 48 | 5 30 | 6 28 | 6 48 | 5 32 | 6 26 | 6 47 |
| 5 | T | 5 29 | 6 28 | 7 6 | 5 31 | 6 26 | 7 8 | 5 33 | 6 24 | 7 9 |
| 6 | W | 5 30 | 6 26 | 7 28 | 5 32 | 6 24 | 7 31 | 5 34 | 6 23 | 7 33 |
| 7 | T | 5 31 | 6 25 | 7 54 | 5 33 | 6 23 | 7 58 | 5 35 | 6 21 | 8 2 |
| 8 | F | 5 32 | 6 23 | 8 24 | 5 34 | 6 21 | 8 29 | 5 35 | 6 20 | 8 35 |
| 9 | S | 5 33 | 6 21 | 9 4 | 5 35 | 6 19 | 9 11 | 5 36 | 6 18 | 9 17 |
| 10 | S | 5 35 | 6 19 | 9 51 | 5 36 | 6 17 | 9 58 | 5 37 | 6 16 | 10 6 |
| 11 | M | 5 36 | 6 17 | 10 52 | 5 37 | 6 16 | 11 0 | 5 38 | 6 15 | 11 7 |
| 12 | T | 5 37 | 6 15 | morn | 5 38 | 6 14 | morn | 5 39 | 6 13 | morn |
| 13 | W | 5 38 | 6 14 | 0 6 | 5 39 | 6 13 | 0 12 | 5 40 | 6 12 | 0 29 |
| 14 | T | 5 39 | 6 12 | 1 25 | 5 40 | 6 11 | 1 30 | 5 41 | 6 10 | 1 36 |
| 15 | F | 5 40 | 6 10 | 2 43 | 5 41 | 6 9 | 2 47 | 5 41 | 6 9 | 2 51 |
| 16 | S | 5 41 | 6 8 | 3 58 | 5 42 | 6 7 | 4 0 | 5 42 | 6 7 | 4 3 |
| 17 | S | 5 42 | 6 6 | sets | 5 43 | 6 5 | sets | 5 43 | 6 5 | sets. |
| 18 | M | 5 43 | 6 5 | 6 22 | 5 44 | 6 4 | 6 22 | 5 44 | 6 4 | 6 24 |
| 19 | T | 5 44 | 6 8 | 6 39 | 5 44 | 6 2 | 6 41 | 5 44 | 6 2 | 6 44 |
| 20 | W | 5 45 | 6 1 | 7 9 | 5 45 | 6 0 | 7 13 | 5 45 | 6 0 | 7 17 |
| 21 | T | 5 46 | 6 0 | 7 37 | 5 46 | 5 59 | 7 42 | 5 46 | 5 59 | 7 47 |
| 22 | F | 5 47 | 5 58 | 8 14 | 5 47 | 5 57 | 8 19 | 5 47 | 5 57 | 8 25 |
| 23 | S | 5 48 | 5 56 | 8 48 | 5 48 | 5 56 | 8 54 | 5 48 | 5 56 | 9 2 |
| 24 | S | 5 50 | 5 55 | 9 37 | 5 49 | 5 54 | 9 45 | 5 49 | 5 54 | 9 52 |
| 25 | M | 5 51 | 5 53 | 10 32 | 5 50 | 5 53 | 10 39 | 5 50 | 5 53 | 10 47 |
| 26 | T | 5 52 | 5 51 | 11 36 | 5 51 | 5 51 | 11 42 | 5 51 | 5 51 | 11 59 |
| 27 | W | 5 53 | 5 49 | morn | 5 52 | 5 49 | morn | 5 52 | 5 49 | morn |
| 28 | T | 5 54 | 5 47 | 0 41 | 5 53 | 5 48 | 0 46 | 5 53 | 5 48 | 0 52 |
| 29 | F | 5 55 | 5 46 | 1 48 | 5 54 | 5 46 | 1 52 | 5 54 | 5 46 | 1 56 |
| 30 | S | 5 56 | 5 44 | 2 51 | 5 55 | 5 45 | 2 54 | 5 55 | 5 45 | 2 57 |

PHASES OF THE MOON.

| MOON. | | BOSTON. | NEW YORK. | WASH'N. | CHA'STON | CHICAGO. |
|---|---|---|---|---|---|---|
| | D. | H. M. | H. M. | H. M. | H. M. | H. M. |
| Full M'n | 3 | 4 29 ev. | 4 17 ev. | 4 5 ev. | 3 53 ev. | 5 23 ev. |
| 3d Quart. | 10 | 11 37 ev. | 11 25 ev. | 11 13 ev. | 11 1 ev. | 10 31 ev. |
| New M'n | 17 | 5 10 ev. | 4 58 ev. | 4 56 ev. | 4 31 ev. | 4 4 ev. |
| 1st Quart | 25 | 7 19 mo. | 7 7 mo. | 6 55 mo | 6 43 mo. | 6 13 mo. |


# AMERICAN AGRICULTURIST.

NEW YORK, SEPTEMBER, 1876.


The results of the harvest season now nearly closed, show very clearly that the effects of the variableness of the seasons may be greatly modified by the farmer himself. In parts of the East, where a severe drouth has prevailed, and where the potato beetles have appeared in great numbers, those farmers have suffered most whose fields have been poor, or who have neglected those simple precautions by which others have saved their crops. In the West, where floods of rain have drenched the fields, it is the undrained lands that have suffered. Where liberal manuring, drainage, or careful cultivation has been done, the ill effects of drouth or excessive moisture have been mitigated. One more resource remains to be exercised, that is irrigation. Every successive year shows more and more conclusively that some practical means of utilizing the excess of the rainfall of a part of the year, during our almost certain dry season, would be of the greatest advantage. How we can best use the surplus of our wet months to relieve the necessities of the dry months, is a question that appeals to the interests of farmers, fruit growers, and gardeners.

## Hints about Work.

*Thrashing.*—The dry weather of July and August over a large portion of the East, has brought the wheat and rye into a condition of ripeness that will much facilitate early thrashing. A large proportion of the grain was in the best condition for thrashing as it came from the field. Many of the best farmers now haul their grain direct from the field to the machine. A second handling is thus avoided, and the straw may go into the stack in a better condition, or into the barn direct. With our usually dry harvest season there seems to be no reason for this double handling, and none to prevent the thrashing of wheat, rye, or oats directly from the field. Our own experience is decidedly in favor of this practice.

*Wheat or Rye.*—Rye is little more than half the price of wheat. The chief reason why this crop is grown, is that the soil is too poor to bring a crop of wheat. To grow a bushel of rye costs just as much as to produce a bushel of wheat. Either the rye is grown at a loss, or the wheat at a large profit. The former is the fact. Why then should rye be grown, excepting in those rare cases in which the straw is in demand for various purposes, and in which the profit of the crop thus lies? Only because the method of farming is poor, and therefore unprofitable. As a help to change the system, we might suggest that the manure used to grow a few acres of rye, be used on half the number of acres of wheat, and the rest of the land be fallowed or sown to clover in the spring, as a means of renovation. But in some way wheat ought to take the place of rye in many districts where that is generally grown.

*Seed Wheat.*—To procure the largest ripest grains for seed, some sheaves may be thrown upon the barn floor in a deep bed, and partly thrashed with the flail, or by driving a pair of horses over them, without untying them. They may then be returned to the mow. This may seem like going back on machinery, and returning to by-gone fashions, but there are some things which can, and perhaps always will, be done best by hand, and this is one of them. Machine thrashed grain is so much cracked or broken, that a large proportion is unfit for seed, and especially when we have to buy seed at double prices, or even more, much is saved by procuring hand thrashed seed. In the way pointed out we get the ripest and largest grain, which makes the best seed.

*Sowing the Seed.*—How much seed per acre should be sown, is a question about which there are various opinions. It depends upon the kind of seed and the richness of the soil. It is pretty certain that a great deal of seed is wasted by over thick sowing. We have found one bushel per acre to produce more than five or six pecks upon similar ground, when sown early this month. But the soil was rich enough to yield 30 bushels per acre. Upon poorer ground this sowing would be too thin. If later sown more seed is needed. There is no question about the advantage of drill sowing over broadcast. To cover the seed by a common cultivator, is a good substitute for drill sowing. Where the ground is at all cloddy, rolling after sowing will be of advantage, otherwise we leave the surface rough.

*Smut.*—As a preventive against smut, it will pay to "pickle" the seed. Steeping in strong brine, lime water, or stale urine, for three hours, are found effective in many cases. Perhaps the best method of pickling seed, is to dissolve four ounces of blue stone (sulphate of copper) in one gallon of water, for every two bushels of seed. Heap the seed upon the barn floor, and sprinkle the solution over it; then mix thoroughly with the shovel until the moisture is spread evenly through the heap. Let it remain twelve hours, when the pickle will be absorbed, and the seed may be sown at once.

*Fertilizers.*—Where the soil has not been well-dressed with rich, rotted manure, some active fertilizer will be useful. Now that we can procure guano guaranteed as to quality, we would choose this for fall use before any other purchased fertilizer. Superphosphate is generally most effective when used in the spring. 150 lbs. of guano, costing about $4.50, per acre, would make a good dressing, to be harrowed in before sowing, or with the seed if it is sown broadcast.

*Surface Draining.*—When they are necessary, surface drains should be made as soon as the fields are sown, and not left until fall rains have come. Generally, to clear out the dead furrows on the higher parts of the field, and to make outlets from the lower parts, where surface water might accumulate, will be sufficient.

*Grass Seed.*—Timothy or orchard grass are better to be sown as soon as the wheat is drilled or covered, than in the spring. A peck of the former, or six pecks of the latter, is not too much if the grass alone is to be sown. If clover is to be sown in the spring, four to six quarts of the former, or a bushel of the latter would be a proper quantity per acre.

*Grasslands.*—Meadows and pastures may be top-dressed with advantage at any spare time during the month. Coarse manure had better be left in the yard to rot, but if any well rotted manure is on hand, it may be evenly spread, and the lumps broken by drawing a dull harrow or a log clod-crusher over it.

*Clover Seed.*—The high price of clover seed makes

it of advantage to save all that can be gathered. Five bushels of clover seed per acre may be saved, if it is made an object to do it. This is worth as much as an average crop of hay. The ground is not exhausted by it. By attaching a sheet-iron apron behind the cutter-bar, so that the rear part drags upon the ground, the heads may be gathered and raked into heaps by a boy following the machine. As the stalks are of little account for fodder, the clover may be exposed to the rain and wind without damage, and with advantage, as the seed will hull out better for it. It may be raked up when perfectly dry, and put under cover to be thrashed in the winter. It is difficult to keep it dry by any way of stacking it out of doors.

*Cutting Corn.*—The value of corn-stalks for fodder, is too often lost sight of in harvesting. To save the fodder as much as possible, the crop should be harvested as soon as the corn is glazed. After that nothing is gained by letting the crop stand, but much loss is risked by reason of storms or frosts. When the whole stalks are not cut, but only the tops above the ears, the fodder may be gathered soon after the first of this month. Binding in small sheaves is a good plan.

*Sowing Corn-Stubble.*—Where the practice of sowing the corn-stubble with wheat prevails, the unsightly method of leaving the strips upon which the corn has been shocked unsown, should be avoided, both on account of its ill appearance and its want of economy. A considerable amount of ground is wasted, and weeds are encouraged. It is not much trouble to haul off the shocks, as described on page 328, and set them up in some place where the corn can be husked conveniently, and what trouble there is in it is well repaid.

*Corn Husking.*—Many farmers are unaware that corn may be husked by machinery, and where a large crop is to be handled, the Philip's Spiral Corn Husker will be found a great help. Other helps for smaller growers, will be found in some greatly improved husking gloves that are now made. They are a protection against cold, and effective.

*Winter Pasture.*—In many places, in the Middle and Southern States for instance, a winter pasture is very convenient, if not necessary. Rye is generally sown for this purpose on fields intended for a spring crop, or the crop is left to grow after having been pastured. Three bushels of seed should be sown, and the earlier this month the better.

*Winter Oats.*—This crop is coming into favor in Southern States, and is being tested in the Middle States. It furnishes fall and winter pasture, or a heavier crop of grain than spring oats. Two bushels per acre should be sown early this month. The earlier it is sown the better.

*Soiling Crops.*—Rye is the first crop that can be used in the spring for soiling purposes. Those farmers or dairymen who intend to soil any of their stock, can best begin now by sowing a piece of rye for early green feed. The ground is cleared in time for oats and peas mixed, or fodder corn. To make soiling crops pay they must be richly manured, as much labor is involved in this method of feeding stock, and only heavy crops will pay for the labor.

*Root Crops.*—Forward crops of mangels or beets may be thinned now to help out the fall feed. The more room the leaves have to spread, the riper and more nutritious the roots will be.

*Sheep.*—The whole flock should now be well looked after. Sheep intended for market should be pushed forward as rapidly as possible. Ewes intended to produce early lambs should not be stinted upon stubbles and bare pastures, but should be supplied liberally with all the food they can digest. They may now be coupled with the ram. For market lambs the Merino ewe crossed with a Cotswold ram, is perhaps the best choice, giving large and rapidly growing lambs, which are easily fed and fatted. Experienced breeders have found no difficulty on account of the ram, nevertheless, a moderate sized, compact, heavy bodied ram is preferable to a lanky rangy animal.

*Young Stock* of all kinds should be prepared for winter. Get them in good condition before the cold weather arrives, or all is lost now that has been gained by the summer's feed. To keep them steadily growing at all seasons, is the secret of raising profitable animals.

*Swine.*—More improvement is noticable in swine than in any other stock, but unless improvement is kept up by the use of thorough-bred males, the stock will go back. As a primary principle in breeding, it may be said that a half-bred or grade male should never be used to produce stock. For a sow that produces ten young at once, it is the very poorest enonomy to breed her to a poor male, no stock pays better to improve than swine, on account of the rapid increase.

*Agricultural Fairs.*—Every farmer should make a point of attending his County Fair and the State Fair that he can most conveniently reach. It matters little whether it is that of his own or an adjoining State. When there the most of his time should be given to examining the stock and implements as a study. Their valuable points should be found and contrasted, and notes made of these with the names of the breeders or the manufacturers. To study the various things exhibited, as though every visitor was a judge, and was expected to render a decision, would be time well employed.

## Work in the Horticultural Departments.

In many orchards this is the harvest month, and care taken with the trees will now be repaid in fruit. The proper treatment of trees from the time of planting to that of bearing has as much to do with the quality of the fruit, as the difference in soils and climates. If trees are planted in well-drained soil, and carefully pruned at the time, and the fruit thinned when they begin to bear, the same variety will be much finer, than where these points are neglected. September is also the "Fair" month, and every grower of fruits and vegetables should select his best specimens of each for the neighboring fair, and if he can exhibit at the larger State and horticultural exhibitions, all the better. Marketing will occupy the attention of the gardener, and the hints given in last month's notes should be heeded. The fruit crop is so large generally, though there are localities with poor crops, that unless unusual care is taken in assorting and packing, poor returns will be realized. The laying of drains should not be postponed later than this month, as the fall rains will hinder the work.

### Orchard and Nursery.

*Peaches.*—Gather for market before they begin to soften, as one soft peach will spoil a basket or crate. See that they are carefully assorted, and handled as little as possible.

*Pears.*—Never shake the fruit from the trees, but hand-pick always. All pears are better when ripened off of the tree. A little practice will enable one to pick at just the right time, so that they will be in eating condition soon after they reach the consumer. New half-barrels, lined with white paper, are the best packages for choice selected pears.

*Apples.*—Assort, and market only the good ones; poor apples will pay best in the form of vinegar.

*Budding* may still be done, as recommended last month. Label each sort carefully.

*Drying.*—Make ample provisions for drying the surplus fruits of all kinds; it is likely that only the best fruit will bring remunerative prices this season.

*Cider and Vinegar.*—See that all inferior fruit is gathered and made into cider, before it has a chance to decay, rejecting all that is partially decayed.

*Seeds.*—Gather stones of peaches and plums for raising stocks, and preserve in boxes of sand, where they will be kept cool. Collect seeds of all trees which it is desirable to propagate, as fast as they ripen, and sow those sorts at once, which will not keep, and preserve the rest in a cool place until spring.

*Planting.*—All land intended for fall planting should be plowed and harrowed, and put into proper condition for setting out trees; if possible, give a good dressing of ashes or ground bone. Stake out the ground ready for planting later in the fall. In northern localities it is better to plow the land, and allow it to remain until spring; purchase the trees this fall, and heel them in, to be ready for setting in spring.

*Seed-Beds* of fruit and ornamental trees must be weeded often, else the tenacious fall weeds will render the work almost impossible, without rooting out the young trees with the weeds.

### Fruit Garden.

Most of the fruits cultivated in this department, except grapes, will have been already gathered, and the main work will be to take such care of the plants, as will secure an abundant crop next year.

*Raspberries.*—Cut away the old canes that have fruited, and burn. Tie up the new growth to stakes or other support, allowing only four or five canes to each plant; shorten these to about 4 feet, and the laterals at 18 inches. It is well to give the rows a dressing of manure, leaving it on all winter.

*Blackberries.*—Cut out the canes which have fruited, and tie up the new ones; do not let them grow over 5 or 6 feet high, and keep the laterals to 18 in.

*Grapes.*—Mildew sometimes appears just as the fruit is about to color; when this happens, dust freely with sulphur, and trust to the rains to wash it off before the fruit is gathered. In picking for market, do not handle the bunches; scissors are made, which hold the bunch after cutting it.

*Currants and Gooseberries.*—Apply manure to the surface to fertilize and mulch. If no manure is used, put on a mulch of litter.

*Dwarf Trees.*—Gather the fruit from these as fast as it matures. Do not allow pears to mellow on the trees, but when the stem parts readily from the tree, pick and lay away on shelves in a cool fruit-room, to color and ripen.

### Kitchen Garden.

*Asparagus.*—If any seeds are needed, gather and allow them to ripen. When the foliage begins to turn yellow, cut and burn the old stalks. Give the bed a liberal coat of manure, which should be left on until spring,

*Beets.*—Keep the late crops hoed, and cultivate between the rows often, until the tops prevent. Sow a few early this month for late greens.

*Beans.*—Hoe and cultivate as often as necessary to keep down the weeds. Gather Limas, and pick and salt down late string beans.

*Celery* should now be growing finely, and care must be taken to keep down the weeds. Towards the end of the month draw the earth up to the plants; do not allow any to get into the center.

*Cabbage and Cauliflower.*—Hoe late crops often, sowing a little guano between the rows before hoeing, and water occasionally with liquid manure.

*Corn.*—Save a few ears of the earliest and best shaped for seed. Cut the stalks from the early crop and dry for fodder. Dry a quantity of green corn for winter use.

*Cucumbers.*—Gather pickles every other day, useing none over three inches long. The ripe fruit may be made into sweet pickle or cucumber catsup.

*Lettuce.*—Sow a few rows for fall use in a cool place.

*Manure.*—Make all the manure possible, by saving house-slops, washing water, and all weeds which have not ripened their seeds; turn and mix thoroughly the manure occasionally, so that it will rot rapidly.

*Martynias.*—Gather the young tender fruit every few days, and put into brine, the same as cucumbers.

*Melons.*—Turn occasionally, to ripen them evenly.

*Onions.*—Gather and store in a cool, dry place, after the tops have fallen over.

*Seeds.*—Save and label as fast as they ripen, and take care to put them where mice cannot reach them.

*Spinach.*—Sow for fall use this month, and hoe as soon as up.

*Sweet Potatoes.*—Move the vines occasionally to keep them from rooting. A few of the largest may be taken out for use, and the rest left to grow.

*Tomatoes.*—Destroy the large green worm which eats the leaves. Before the frost comes gather a quantity of green ones for pickling.

*Turnips.*—Hoe and thin the late sown crops, and

keep the others cultivated until the tops cover the ground. Sow seeds of the flat kinds in any vacant spots, and if the fall is moderately long, a fair crop may be expected.

*Weeds.*—Allow none to go to seed. Use the cultivator wherever it will save hand labor. Let no weeds run to seed along the fence rows, as these soon fill the ground with seeds.

## Flower Garden and Lawn.

The fall rains will in most places have started the grass and flowers into fresh growth, and the garden should now be in the glory of its late bloom.

*Lawn.*—Mow every week or so to keep down annual weeds. If there are any spots in which the grass has been killed by drouths, sow grass seed, if possible just before a shower, or mend with sods.

*Chrysanthemums.*—A few of the best varieties should be taken up and potted for blooming in the house, giving them a few days shading. Tie up any that require it.

*Cuttings.*—Provide a stock of cuttings of plants for winter flowering. Shade the cutting bed from the sun during hot days.

*Dahlias* should now look their best, and must be kept tied up carefully to stakes, else they will be broken by the wind.

*Walks.*—Keep free from weeds; rake and roll. Cut the margins with an edging knife, and keep the grass roots from entering the walks.

*Perennial Plants.*—Keep down the weeds and save seeds of such as are wanted as fast as they ripen.

*Insects.*—Remove and burn all late caterpillars which infest shrubs and ornamental trees.

## Greenhouse and Window Plants.

The general overhauling and cleaning of the greenhouse should be over, so that tender plants, which have been out during the summer, may be taken in at any time.

*Glazing* should be done, and if the glass is not perfectly tight, give the sash bars a coat of thick lead paint, to close up all cracks.

*Pots.*—Have a plenty on hand for all plants which are to be taken in. Wash and clean all which require it, as it is a bad practice to put plants into dirty pots.

*Hanging Baskets* may now be refilled and set in the shade for a few days, and then removed to the house or greenhouse.

*Propagation.*—Make cuttings of all bedding and greenhouse plants which it is desirable to have a stock of, and take care not to allow the air to blow over the cutting bed, as this soon dries out the sand.

## Commercial Matters—Market Prices.

Gold has been up to 112¾, and down to 111⅛, closing Aug. 12, at 111⅛, as against 111⅞ on July 12, and 112¾ on May 13 ... The movements in the Breadstuff line have been on a restricted scale. The export inquiry for supplies has been comparatively moderate; the foreign advices having been, as a whole, unfavorable to free purchases for shipment. The home trade demand has been fair, but not urgent. Supplies have been offered with freedom, particularly Grain "out of order," which, in the instance of Spring Wheat especially, constituted the bulk of the available stock here. The oppressively warm weather in July very seriously damaged the Grain accumulation here; and also injured the stock Flour considerably. Strictly prime Wheat, Corn, and Oats have been comparatively scarce. Prices have been quite variable, during the month, closing weak for Flour, Wheat, and Rye; and firm for Corn and Oats. New Winter Wheat Flour, and new Winter Wheat, and new Oats have been arriving more freely, and have been selling quite readily on arrival at relatively full prices. The new Oats, which have thus far come to hand, have been mostly very light and poor. The new Winter Wheat, particularly new amber, has been of excellent quality, as a rule. New crop State Barley is now offering here by sample for late September arrival. The samples appear to be of light weight, but otherwise of very good quality and color. Of Flour, the favorite brands with home trade buyers have been Minnesota extras, straight, and patent, which have been sold with promptness and close up to production. On Thursday, August 10, a sample of new crop Minnesota Spring was exhibited at the Produce Exchange. It was, as to berry, very hard and sound, and deemed much superior to last year's crop. Thus far the new crop of Spring in Minnesota has been harvested in fine condition. The weather has not only been generally fine, but great care has been exercised in handling. After last year's severe experience, northwestern farmers are far more cautious than ever before, and have adopted the rule of "stacking as they go along." All reports seem to agree that the yield is below the average of the last two heavy crops, but opinions differ as to the extent of the deficiency, the range being from 15 to 30 per cent in various sections. The sample shown here to-day will test *at least* 60 lbs. per bushel.... Provisions have been active, but, in the leading items, unsettled in price.... Wool has been in more demand for manufacturing purposes, closing more firmly, on less urgent offerings.... Cotton has been freely dealt in, and has advanced.... Tobacco, Hay, Straw, Hops, Naval Stores, and Petroleum have been more sought after, and have shown more steadiness as to values toward the close .. Ocean Grain freights have been moderately active, closing firmly. Grain rates by steam to Liverpool, closed on the 12th Aug. at 9*d*; to Glasgow at 9*d*; to London at 7¼@8*d*; to Liverpool, by sail, at 8 @8¼*d*; London, by sail, at 7½*d*. per bushel. Provisions by steam to Liverpool, 40*s*.@55*s*. per ton; Cotton at $^{5}/_{16}$@¾*d*. ℔ lb. Grain tonnage for Cork and orders, at 6*s*.@6*s*.3*d*. per quarter. Grain rates from San Francisco to Liverpool, quoted at 65*s*.

The following prepared specially for the *American Agriculturist*, from our daily record during the year, show at a glance the transactions for the month ending Aug. 14th, 1876, and for the corresponding month last year:

CURRENT WHOLESALE PRICES.

| | July 13. | Aug. 14. |
|---|---|---|
| PRICE OF GOLD | 111 7-8 | 111 1-2 |
| FLOUR—Super to Extra State | $3 25 @ 5 30 | $3 65 @ 5 25 |
| Super to Extra Southern | 3 75 @ 8 75 | 3 65 @ 8 50 |
| Extra Western | 4 25 @ 9 50 | 4 40 @ 9 25 |
| Extra Genesee | 5 30 @ 6 75 | 5 25 @ 6 50 |
| Superfine Western | 3 60 @ 4 00 | 3 65 @ 4 35 |
| RYE FLOUR | 3 50 @ 5 15 | 2 75 @ 5 15 |
| CORN-MEAL | 2 60 @ 3 35 | 2 60 @ 3 25 |
| WHEAT—All kinds of White | 1 20 @ 1 45 | 1 20 @ 1 35 |
| All kinds of Red and Amber | 80 @ 1 28 | 70 @ 1 30 |
| CORN—Yellow | 55½@ 60 | 57 @ 61 |
| Mixed | 47 @ 57 | 48 @ 58½ |
| White | 56 @ 62 | 56 @ 63 |
| OATS—Western | 30 @ 43 | 26 @ 45 |
| State | 37 @ 44 | 39 @ 48 |
| RYE | 72 @ 88 | 60 @ 76 |
| BARLEY | Nominal. | Nominal. |
| HAY—Bale, ℔ 100 lbs | 60 @ 1 00 | 55 @ 95 |
| STRAW, ℔ 100 lbs | 60 @ 1 15 | 45 @ 95 |
| COTTON—Middlings, ℔ lb | 11¾@ 11¾ | 12⅜@ 12½ |
| HOPS—Crop of 1875, ℔ lb | 10 @ 17 | 10 @ 20 |
| " new, ℔ lb | — @ — | — @ 30 |
| FEATHERS—Live Geese, ℔ lb | 30 @ 60 | 50 @ 60 |
| SEED—Clover, ℔ lb | Nominal. | 16 @ 16½ |
| Timothy, ℔ bushel | 2 70 @ 2 90 | 2 75 @ 2 90 |
| FLAX, ℔ bushel | 1 50 @ — | 1 40 @ 1 42½ |
| SUGAR—Refi'g & Grocery ℔ lb | 7⅛@ 9½ | 7⅛@ 10¼ |
| MOLASSES, Cuba, ℔ gal | 28 @ 38 | 30 @ 42 |
| New Orleans, new crop, ℔ gal | 45 @ 60 | 47½@ 60 |
| COPPER—Ingo (Gold) | 15¼@ 18¼ | 14¾@ 17¾ |
| TOBACCO, Kentucky, &c., ℔ lb | 6 @ 25 | 6 @ 25 |
| Seed Leaf, ℔ lb | 5 @ 35 | 5 @ 25 |
| WOOL—Domestic Fleece, ℔ lb | 18 @ 40 | 18 @ 40 |
| Domestic, pulled, ℔ lb | 16 @ 35 | 16 @ 35 |
| California, clip | 10 @ 25 | 10 @ 25 |
| TALLOW, ℔ lb | 8¼@ 8⅝ | 8⅜@ 8⅝ |
| OIL-CAKE—℔ ton | 36 50 @39 50 | 38 00 @39 50 |
| PORK—Mess, ℔ barrel | — @20 00 | — @19 40 |
| Prime Mess, ℔ barrel | 19 00 @19 50 | — @ — |
| BEEF—Plain mess | 10 00 @11 00 | 9 00 @11 00 |
| LARD, in trcs. & bbls, ℔ 100 lb | 11 00 @11 25 | 11 00 @11 15 |
| BUTTER—State, ℔ lb | 15 @ 26 | 16 @ 30 |
| Western, poor to fancy, ℔ lb | 12 @ 24 | 14 @ 27 |
| CHEESE | 4 @ 10¼ | 3 @ 9¾ |
| BEANS—℔ bushel | 40 @ 1 40 | 50 @ 1 50 |
| PEAS—Canada, in bond, ℔ bu | — @ 99 | 96 @ 98 |
| EGGS—Fresh, ℔ dozen | 14½@ 18 | 15 @ 20½ |
| POULTRY—Fowls | 13 @ 18 | 12 @ 16 |
| Turkeys—℔ lb | 13 @ 18 | 13 @ 17 |
| Geese, ℔ pair | 1 25 @ 2 50 | 1 25 @ 1 75 |
| Ducks, ℔ pair | 60 @ 1 12½ | 56 @ 1 00 |
| Roosters, ℔ lb | 8 @ 10 | — @ — |
| Chickens, dry pick'd ℔ lb | 20 @ 33 | 16 @ 25 |
| WOODCOCK, ℔ pair | — @ — | 75 @ 90 |
| PIGEONS, wild, ℔ dozen | 90 @ 1 37½ | — @ — |
| " tame, ℔ dozen | 1 50 @ 1 75 | 1 00 @ 1 25 |
| CUCUMBERS, ℔ 100 | — @ — | 37 @ 50 |
| TURNIPS ℔ bbl | — @ — | 2 00 @ 2 50 |
| CABBAGES—℔ 100 | 5 00 @ 8 00 | 5 00 @ 8 00 |
| ONIONS—℔ bbl | — @ — | 2 50 @ 3 00 |
| POTATOES—New ℔ bbl | 2 00 @ 4 50 | 2 00 @ 3 50 |
| SWEET POTATOES—℔ bbl | — @ — | 3 00 @ 6 00 |
| BROOM-CORN | 3 @ 10 | 3 @ 9 |
| WATERMELONS, ℔ 100 | 25 00 @50 00 | 15 00 @30 00 |
| GREEN PEAS, ℔ bush | — @ — | 1 00 @ 1 15 |
| TOMATOES, ℔ bush | — @ — | 87½@ 1 25 |
| BEETS, ℔ 100 bunches | — @ — | 2 50 @ 3 00 |
| EGG PLANTS, ℔ doz | — @ — | 90 @ 1 25 |
| GREEN CORN, ℔ 100 | — @ — | 75 @ 1 00 |
| NUTMEG MELONS, ℔ bbl | — @ — | 2 00 @ 2 50 |
| APPLES—℔ barrel | 1 50 @ 3 50 | 75 @ 2 00 |
| SQUASH, ℔ bbl | — @ — | 2 00 @ 3 00 |
| PEARS, ℔ bbl | — @ — | 1 50 @ 5 00 |
| PEARS, ℔ box | — @ — | 4 00 @ 6 00 |
| PEACHES, ℔ basket | — @ — | 25 @ 50 |
| PLUMS, ℔ box | — @ — | 3 00 @ 5 00 |
| BLACKBERRIES, ℔ qt | 3 @ 15 | 3 @ 12 |
| GRAPES, ℔ lb | — @ — | 6 @ 9 |
| WHORTLEBERRIES, ℔ bush | 2 00 @ 3 50 | 75 @ 1 50 |
| MAPLE SUGAR, ℔ lb | 6 @ 10 | — @ — |
| MAPLE SYRUP, ℔ gallon | 70 @ 1 00 | — @ — |

**1.** TRANSACTIONS AT THE NEW YORK MARKETS.

| RECEIPTS. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats.* |
|---|---|---|---|---|---|---|
| 26 d's *this* m'th | 305,000 | 2,451,000 | 2,060,100 | 112,000 | 65,000 | 1,015,002 |
| 24 d's *last* m'th | 331,000 | 4,937,000 | 2,405,000 | 239,000 | 141,000 | 1,216,000 |
| SALES. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats.* |
| 26 d's *this* m'th | 412,000 | 2,634,000 | 2,107,000 | 39,000 | — | 1,104,000 |
| 24 d's *last* m'th | 363,000 | 2,376,000 | 2,613,000 | 143,000 | — | 986,000 |

**2.** *Comparison with same period at this time last year.*

| RECEIPTS. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats.* |
|---|---|---|---|---|---|---|
| 26 days 1876 | 305,000 | 2,451,500 | 2,060,100 | 112,000 | 65,000 | 1,015,000 |
| 27 days 1875 | 361,000 | 4,117,000 | 1,984,000 | 21,000 | — | 411,000 |
| SALES. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats.* |
| 26 days 1876 | 412,000 | 2,634,000 | 3,107,000 | 39,000 | — | 1,104,000 |
| 27 days 1875 | 497,000 | 3,711,000 | 3,105,000 | 49,000 | 81,000 | 1,604,000 |

**3.** *Stock of grain in store at New York.*

| | *Wheat.* bush. | *Corn.* bush. | *Rye.* bush. | *Barley.* bush. | *Oats.* bush. | *Malt.* bush. |
|---|---|---|---|---|---|---|
| Aug. 7, 1876 | 2,831,299 | 904,557 | 94,960 | 53,914 | 1,232,895 | 434,208 |
| July 10, 1876 | 2,189,729 | 296,727 | 61,508 | 15,675 | 1,014,047 | 482,009 |
| June 9, 1876 | 1,121,293 | 628,518 | 3,969 | 15,674 | 885,042 | 507,157 |
| May 8, 1876 | 1,563,826 | 172,090 | 16,365 | 33,301 | 457,387 | 450,643 |
| Apr. 10, 1876 | 3,393,074 | 232,140 | 68,429 | 200,381 | 706,282 | 436,942 |
| Mar. 6, 1876 | 4,478,653 | 302,026 | 82,562 | 441,078 | 757,457 | 377,278 |
| Jan. 10, 1876 | 5,802,293 | 663,962 | 100,741 | 325,191 | 1,080,300 | 307,436 |
| Dec. 7, 1875 | 5,878,036 | 816,962 | 98,908 | 305,961 | 1,252,005 | 258,364 |
| May 11, 1875 | 969,804 | 1,542,924 | 16,124 | 16,537 | 545,209 | 229,655 |
| Jan. 11, 1875 | 3,675,122 | 1,049,900 | 50,389 | 191,479 | 877,014 | 145,647 |

**4.** *Exports from New York, Jan. 1, to July 12.*

| | *Flour.* bbls. | *Wheat.* bush. | *Corn.* bush. | *Rye.* bush. | *Barley.* bush. | *Oats.* bush. | *Peas.* bush. |
|---|---|---|---|---|---|---|---|
| 1876 | 1,164,721 | 17,575,520 | 8,844,000 | 691,000 | 28,100 | 302,000 | 455,987 |
| 1875 | 1,129,041 | 14,650,208 | 7,225,590 | 120,163 | 165 | 75,147 | 229,589 |
| 1874 | 1,365,480 | 23,290,750 | 14,513,411 | 531,001 | 320 | 72,311 | 263,883 |
| 1873 | 791,998 | 9,278,612 | 7,669,335 | 327,970 | 19,726 | 20,839 | 92,496 |
| 1872 | 547,791 | 5,479,949 | 14,572,323 | 510,678 | 22,666 | 29,706 | 123,693 |
| 1871 | 1,095,079 | 10,556,653 | 6,341,032 | 71,399 | 81,797 | 16,764 | — |
| 1870 | 1,069,227 | 10,396,257 | 220,647 | 65,734 | — | 11,205 | — |
| 1869 | 812,764 | 9,099,803 | 1,537,077 | 72,811 | — | 42,727 | — |
| 1868 | 575,091 | 3,309,201 | 4,903,873 | 158,073 | — | 40,643 | — |

**5.** *Tide-water Receipts at Albany, from opening of navigation to July 1:*

| | *Flour.* bbls. | *Wheat.* bush. | *Corn.* bush. | *Rye.* bush. | *Barley.* bush. | *Oats.* bush. | *Malt.* bush. |
|---|---|---|---|---|---|---|---|
| 1876 | 18,700 | 7,597,500 | 2,565,000 | 327,000 | 114,500 | 1,791,2 0 | 365,500 |
| 1875 | 27,200 | 7,504,600 | 1,932,200 | 68,700 | — | 1,023,200 | 456,500 |
| 1874 | 35,100 | 11,590,000 | 9,795,200 | 189,800 | 74,100 | 1,216,700 | 356,300 |

## New York Live-Stock Markets.

RECEIPTS.

| WEEK ENDING | *Beeves.* | *Cows.* | *Calves.* | *Sheep.* | *Swine.* | *Tot'l.* |
|---|---|---|---|---|---|---|
| July 17 | 9,231 | 91 | 3,730 | 31,727 | 20,417 | 65,196 |
| July 24 | 9,439 | 85 | 2,718 | 20,060 | 21,832 | 54,134 |
| July 31 | 10,259 | 93 | 3,115 | 31,021 | 17,564 | 62,052 |
| Aug. 7 | 11,440 | 148 | 3,543 | 30,570 | 21,382 | 67,088 |
| Aug. 14 | 8,988 | 86 | 2,750 | 28,343 | 19,003 | 59,570 |
| *Total for 5 Weeks* | 49,347 | 503 | 15,861 | 141,621 | 100,798 | 308,140 |
| do. *for prev. 4 Weeks* | 34,991 | 234 | 12,575 | 95,911 | 79,595 | 223,246 |

| | *Beeves.* | *Cows.* | *Calves.* | *Sheep.* | *Swine.* |
|---|---|---|---|---|---|
| *Average per Week* | 9,871 | 100 | 3,172 | 28,324 | 20,159 |
| do. do. *last Month* | 8,732 | 58 | 3,144 | 23,980 | 19,326 |
| do. do. *prev's Month* | 9,264 | 60 | 4,838 | 24,291 | 22,224 |

**Beeves.**—The crowded condition of the market during the past month, along with the moderate demand, has resulted in reducing prices considerably. No class of stock has held its own but extra beeves of 1,500 lbs., and of these over 2,000 head, or an average of 400 per week, have been shipped to England. Ordinary stock has had no such mode of relief, and has given way, as shown in our record of prices. The Texas drive of this season is now estimated at 311,390 head, which is larger than usual. Colorado beeves have made their first appearance this season, selling at 7½@8c. ℔ lb., 55 lbs. to gross cwt. The market closes at the lowest rates of the past 10 years. Cherokees sold at 6¼c. ℔ lb., for 54 lbs. to the cwt.; Natives at 7½@7¾c. for poor, 8¼@8¾c. for ordinary; 9@9¼c. for medium, and 9¼@9¼c. for good cattle; extra cattle of 57 lbs. to the cwt. were scarce, and sold for 10¼@10¾c. ℔ lb.

The prices for the past five weeks were as follows:

| WEEK ENDING | *Range.* | *Large Sales.* | *Aver.* |
|---|---|---|---|
| July 17 | 8 @10¼c. | 9¼@10¼c. | 9¼c. |
| July 24 | 8¼@10¾c. | 9¼@10¼c. | 9¾c. |
| July 31 | 7¾@10¾c. | 8 @10¼c. | 9¼c. |
| Aug. 7 | 6¼@10¼c. | 7¼@ 9¼c. | 9 c. |
| Aug. 14 | 6¼@10¼c. | 6¼@ 9¼c. | 8¾c. |

**Cows.**—Poor cows that have been rushed in for sale, have helped to reduce prices $5 to $8 per head the past month. While good cows sell readily, yet on the whole, these being scarce, the business has been dull, and rates at the close were from $40 to $80 per head for extremes either way..... **Calves.**—There has been a glut of veals, and sales have been made of grass calves at $5 to $6 per head, for 180 to 190 lbs. Milk veals sold at the close of our report at 5¼@6¼c. ℔ lb. live weight for poor, and 7@ 8c. ℔ lb. for good; really prime brought 8¼c.... **Sheep and Lambs.**—This stock has felt the effect of over-supplies as well as other kinds, and poor qualities have sold as low as 3c. ℔ lb. live weight. Better sheep have sold for 4¼c., and good at 5¼c.; the best bringing 5¾@5c. ℔ lb. Lambs have sold for 7c. to 8c. ℔ lb., the best Jersey bringing 8¼c. As we close there is no change to be noticed.... **Swine.**—For hogs the market has been quiet, with an advance early in the month, and a gradual decline since then. The demand is weak, and closing prices may be quoted at 7¼@8¼ ℔ lb. for city dressed, and $6.80@$7 ℔ 100 lbs. for fair to good live hogs

## Prices of Feed.

| | |
|---|---|
| Bran, per ton | $18.00@$20.00 |
| Middlings, per ton | 19.00@ 21.00 |
| Ground Feed, per ton | 15.00@ 21.00 |
| Linseed-oil-cake, western, per ton | 44.00@ 47.00 |
| Cotton-seed-cake, per ton | 25.50@ 40.00 |
| Chandler's Scraps, per lb | 3@ 4 |

## Prices of Fertilizers.

| | |
|---|---|
| No. 1. Peruv. Guano 10 p. ct. ammonia, standard, ℔ ton | $56.50 |
| do. do. guaranteed, ℔ ton | 56.00 |
| do do. rectified, per ton | 61.50 |
| Mapes' Nitrogenized Superphosphate, per ton | 45.00@ 50.00 |
| " Plain Superphosphate (mineral), per ton | 30.00@ 35.00 |
| " Bone Superphosphate, per ton | 40.00@ 45.00 |
| " Prepared Fish Guano, per ton | 35.00@ 40.00 |
| Quinnipiac Fertilizer Co's. Phosphate, per ton | 40.00 |
| " " Dry ground Fish Guano, ton | 45.00 |
| " " Pine Island Guano, per ton | 45.00 |
| Fish Guano (crude in barrels), per ton | 24.00 |
| Bone Black, per ton | 25.00@ 28.00 |
| Bone Flour, per ton | 40.00@ 45.00 |
| Rawbones Ground (pure), per ton | 33.00@ 40.00 |
| Rough Bones, per ton | 22.00@ 25.00 |
| German Potash Salts, (26@33 per cent), per ton | 20.00@ 25.00 |
| Gypsum, Nova Scotia, ground, per ton | 8.00@ 9.00 |
| " In barrels, per bbl | 1.25 |
| Wood Ashes, per bushel | 16 c.@18 c. |
| Nitrate of Potash (95 per cent.), per lb | 8½c.@ 9 c. |
| Chloride of Potass, (muriate of potash, 80p.c.), lb | 2¾c.@ 3¼c. |
| Nitrate of Soda, per lb | 4 c.@ 4½c. |
| Sulphate of Ammonia (25 per cent.), per lb | 5 c.@ 5½c. |
| Dried Blood or Dried Meat per unit of ammonia | $3.00@ $ 4.00 |

## September 1st, 1876.

```
                A    MM MM  EEE  RRR  II  CCC   A   NN N
               AA    M M M  E    R  R  II C   C AA  NN N
              A A    M M M  EE   RRR  II C      A A N N N
             AAA     M M M  E    R R  II C   C AAA N  NN
            A   A    M M M  EEE  R  R II  CCC  A A N   N

 A    GGG   RRR  II  CCC  U  U  L      TTTTT  U  U  RRR  II  SSS  S  TTTTT
AA   G   G  R  R  II C   C U  U  L        T    U  U  R  R  II S   S   T
A A  G      RRR  II C     U  U  L        T    U  U  RRR  II  SSS  S   T
AAA  G  GG  R R  II C   C U  U  L        T    U  U  R R  II     S   T
A A  GGG    R  R II  CCC   UU   LLLL     T     UU   R  R II SSSS    T
```

# For 1877.

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**Bound Copies of Volume Thirty-four** are now ready. Price, $2, at our office; or $2.50 each, if sent by mail. Any of the last nineteen volumes (16 to 34) will also be forwarded at same price. Sets of numbers sent to our office will be neatly bound in our regular style, at 75 cents per vol. (50 cents extra, if returned by mail.) Missing numbers supplied at 12 cents each.

**Our National BAZAAR** this month, contains the usual assortment of good things, advertised by trustworthy men. It will always pay any one to look all through the advertisements, and see what is offered, by whom, at what price, etc. Many a man has got a valuable new idea from seeing what others say about business matters, which has started his own thought in a profitable direction. When writing to any of our advertisers, for information, catalogues, etc., or sending orders to them, please let them know that you belong to the great *Agriculturist* family, and you may expect and will receive good treatment. Our advertisers know that we carefully exclude any one who does not promptly perform what he promises in his advertisement.

**Speak a Word for the German American Agriculturist.**—For 17 years past an edition of this journal has been issued in the German language for the benefit of the large number of our citizens who read only the language of Vaterland. It contains the engravings and all the principal reading of the English edition. Several pages devoted to the advertisements in the English edition, are in the German edition occupied by a special extra Department, edited by the Hon. Frederick Münch, a distinguished cultivator of Missouri, which gives it additional value to the German reader. The colored cover only is omitted from the German edition. Many of our subscribers take the German copy for their gardener or their workmen. Will our friends make this edition known to their German friends and neighbors? Having the advantage of the engravings of the English edition, it is larger, better, and cheaper, than it could be if published independently. Both editions are issued on the same terms, and clubs may consist of either edition, or a part of both.

**The Fair List.**—Our list of State, County, and other fairs will be found on page 355. Contrary to expectations, the list is nearly as full as usual; we expected that the great Centennial Exhibition would so overshadow others, that many societies, especially those comparatively near Philadelphia, would omit their fairs for the present year. We are glad to find that this is not the case. Notwithstanding the thousands that will visit the great fair, they form but a small proportion of the whole population, and we are glad that those who are unable to attend the Centennial, will have their instruction and recreation provided for their local fairs. Every man, woman, and child that is old enough to profit by it, should attend one or more of these gatherings. Do not omit to show *something*, if only a single article; recollect that fairs must have exhibitors as well as spectators.

**Standard Gooseberries and Currants.**—In an article describing these interesting horticultural novelties, on p. 341, we omitted to notice another instance of their successful cultivation. In July we received from Mr. Henry Schmidt, Weehawken, N. J.,

two boxes, containing specimens of six choice varieties of European gooseberries, which were grown upon standard bushes of the kind described in the article referred to. The fruit was of large size, thoroughly perfect, and presented a sight seldom seen in this country. —We learn that Mr. S. received his plants several years ago from an importation by Dr. Siedhof, and he is greatly pleased with his success. The specimens on the Centennial grounds are unfortunately placed just outside of the current of travel, and are likely to escape notice. A path leads from the rear steps of the Horticultural building directly to the German restaurant. The bed of standard gooseberries and currants is upon one path further to the right, towards the boundary fence. Though the fruit has long been gone, an inspection of the plants can not fail to gratify all interested in such matters.

**Evergreens at Auction.**—S. B. Parsons & Sons, of Flushing, L.I., sent a few hundred choice specimens of the rarer kinds of Conifers, to the auction rooms of Messrs. Young & Elliott, in Courtlandt st., and they were sold on August 8th. Although the company of buyers was not large, they showed their confidence in the opinion of Messrs. Parsons, that "this season was the most suitable for transplanting conifers," by purchasing all offered at prices that must have been very satisfactory to the owners.

**The Wakefield Earth Closet Co.** —We regret having to say that the Wakefield Earth Closet Company, who in months past have advertised their useful manufactures in the columns of this journal, have been compelled by financial embarrassments to suspend payments.

**Dederick & Co. Hay Presses.**—Only last month we noticed the destruction by fire of A. B. Farquhar's Agricultural Works at York, Pa., and we now have to record a similar casualty to the works of P. K. Dederick & Co., Albany, N. Y., makers of the celebrated hay presses bearing their name. As in the former case, the news of the disaster is accompanied by the statement that "we are now busy rebuilding." Messrs. D. & Co. give us the dimensions of four large brick and several frame buildings, which are going up to replace the old ones. The fire does not stop their business, as they are going on under temporary sheds, and wherever they can find shelter, to fill their orders as fast as possible. There is an admirable spirit among the manufacturers of agricultural implements, and they seem to take disaster as a matter of course.

**Ropp's Commercial Calculator,** is the title of a work by C. Ropp, Jr., Bloomington, Ill., intended for the use of farmers, mechanics, and others who need to use tables and rapid methods of arriving at values and quantities. Thus one can find at a glance the value of any number of bushels of wheat or other grain, at a given price, wages for a given time, interest at various rates, etc. It has received the endorsement of eminent mathematicians, and appears to be an exceedingly complete work. Sent by mail for $1.

**What Dom Pedro Saw.**—It would be difficult to say what this much sight-seeing monarch did not see during his visit to this country. At the Centennial Exhibition he saw the Boynton Lightning Saw, run by two men, saw a log of wood a foot in diameter in seven seconds. The emperor remarked that it was "fast, very fast." Had he been better versed in English, he might have said: "Of all the saws that I ever saw saw, I never saw a saw saw as that saw saws."

**Pomologists this Month.**—Every fruit-grower should bear in mind that the great exhibition of fruits comes off at the Centennial this month, from the 11th to the 16th. Some of the leading societies are taking measures to exhibit, and each individual fruit-grower should aid. This can be, and should be, the greatest fruit-show the world has ever seen. Articles for exhibition should be delivered, free of charge, to Burnett Landreth, Chief of Bureau of Agriculture, Centennial Exhibition, Philadelphia. A special annex has been erected, and plates and all other facilities for showing the fruit will be provided. We in a former article expressed our regret that the Pennsylvania Horticultural Society should hold a rival exhibition at the same time. We have since learned that there are valid reasons why this Society should hold their usual exhibition, but that at the same time it will co-operate with, and the members contribute to the Centennial show. We are glad that this seeming obstacle is removed, now let us all pull together.—*Members of the American Pomological Society* will recollect that they are invited to accept the hospitalities of the Pennsylvania Society on one evening during the exhibition. Of course, every member of the Pomological Society, who intends to visit the Centennial, will do so at the time of the exhibition of Pomological Products. Col. Wilder and the rest of the *boys* from Massachusetts are expected.

**Agricultural Engineer.**—Otto Sackersdorff, Esq., who has long been known to us as standing high in his profession as an engineer, proposes to give especial attention to farm drainage and other agricultural operations where professional skill is required.

**Board at the Centennial.**—We learn that Rev. E. M. Long, S. E. Corner of 12th and Berks Sts., Philadelphia, is providing in select private families, "good sleeping apartments, with the best of board, at much lower rates than is asked by ordinary boarding-houses and-hotels, or $5 to $14 per week." We understand that this is designed more especially for ministers and Christian families, but have not time to ascertain particulars before going to press. Those desiring, can obtain information by addressing Mr. Long as above.

**Grapes in Missouri.**—Messrs. Bush, Son & Meissner, Bushberg, Mo., in sending their very full price list of vines, write us that their fruit, which set very full, was badly damaged by rot in June. They had made arrangements to show 80 varieties at the Centennial, but with most of them the fruit is entirely destroyed. Ives and Perkins mostly escaped. Norton's Virginia, and Cynthiana have good crops, and Elvira, a new variety, of which they have great expectations, suffered only partially.

**Mr. Ricketts' Grapes.**—Mr. J. H. Ricketts, whose wonderful success with seedling grapes we have before mentioned, informs us that his prospects for a crop are very fine. He will be glad to show his seedlings to all those interested in grape culture, who will visit his garden at Newburgh, N. Y.

**The New York Horticultural Society.**—The Fall Exhibition begins on September 19th, and lasts four days, at Gilmore's Garden, formerly known as the Hippodrome. To judge from the spring show, a fine display may be expected.

**Breeding Rabbits.**—Our friend C. will excuse us if we make use of his request as an example of a class of very puzzling questions. He writes: that he has had "poor luck with his rabbits," and "would like a few hints in your Basket Items. Please reply in your next No."—We have many queries quite as indefinite as this, and no doubt many good people feel neglected because they get no reply. The only way to answer this is, to write a full treatise on rabbit breeding, in the hope that something in it might meet the case. The only definite statement is that our friend has "poor luck," for which we know of no special remedy. If our friend will state in what particular he fails, we will try to help him. At present, being quite in the dark as to the trouble, we can not suggest a remedy.

**A Self-Adjusting Watch-Key** is a small affair upon which to build a large business, yet Mr. J. S. Birch, whose key we have before noticed, informs us that his business has so increased, especially from foreign orders, that in order to secure sufficient room, he has removed to 38 Dey St., New York City.

**$1.60 Will Pay** for this Journal from *now*, away on to the *end* of 1877, delivered free of postage! Is not that cheap enough. The **700** or more, beautiful, and instructive engravings would alone be cheap at that price; but there will be over **1,300 Columns** of good original reading matter, useful and instructive—the very best that can be possibly obtained——all for $1.60, postage included. (See page 325.)

**$1.35 will pay for all the above,** when four persons unite and send $5.40 for the four. Please tell your non-reading neighbors!

**Book on Farm Crops.**—"G. T. G.," Fort Smith, Ark. The best book that treats of farm crops is L. F. Allen's New American Farm Book, price $2.50, sent postage paid from this office.

**A Horrible Weed!**—"A. W.," Columbus City, Iowa. The "Horse Nettle," so called, though not related to the nettles, but to the potato, its botanical name being *Solanum Carolinense*. This is probably the very worst weed in the country, and more to be dreaded than the Canada Thistle. "It occupies about two rods in length of the road," says our correspondent. If a catamount, a bear, or even a den of rattle-snakes, were known to be near Columbus City, what an excitement there would be, and the neighbors would not rest until the enemy was killed. Here is something worse than all these, and all hands should work for its destruction. It is the toughest of all weeds to kill, but repeated and persistent cutting will destroy it in time. Do not, as you value your farms, let a seed ripen. The county had better pay $5,000 for the destruction of this patch, than to have it spread. When this is once fairly established on a farm, the farmer must leave. We have not before heard of this in a locality so far north, and probably the season is not long enough for it to perfect its seeds, or it would long ago have left the road for the fields. We have seen farms in Delaware and south of that, rendered absolutely untenantable by this worst of weeds. There should not be a stem or a leaf of the plant visible in 24 hours after this paper reaches Columbus City. Destroy this weed at whatever cost.

**A Powerful Team at Mowing.**—According to the Reading (Pa.) "Eagle," Adam L. Fisher, of Marion township, engaged the services of *eight brothers* at mowing oats in a thirty-two acre field. Below we give the name, age, and hight, of each of the brothers: Benjamin Heffinger, 41 years old, hight 6 feet 1½ inches; George, 38 years old, hight 5 feet 11 inches; John, 35 years old, hight 6 feet; William, 30 years old, hight 5 feet 11½ inches; Franklin, 26 years old, hight 5 feet 11¾ inches; Daniel, 24 years old, hight 5 feet 11¾ inches; Pearse, 23 years old, hight 6 feet 1½ inches; Gabriel, 19 years old, hight 5 feet 11½ inches. Here were 48 feet of brothers, the eight averaging six feet in hight, all sound in health! They mowed the thirty-two acres of oats in one day, which is an average of four acres to the man. They all live in Marion township, the furthest within an hour's walk of Mr. Fisher's.

## Sundry Humbugs.

Swindlers are not always after small game, some try their hand upon business men and capitalists. A gentleman who had been engaged in numerous enterprises, not long ago received a letter informing him that the writer had discovered that said gentleman was owner of ten shares in the stock of a certain mining concern, which, instead of being valueless as had been supposed, was really worth a considerable sum, and the writer would secure this, but of course needed some money advanced to pay traveling and other expenses. The only attention paid to the letter was to send it to us, with the note that the recipient never owned any such stock. This seems about as stupid an attempt at raising the wind as could be devised, and no more likely to work than

THE HOTEL DODGE,

which was very common a few years ago, and now has been revived. This is usually tried upon persons living at a distance, especially at the South. A letter is received from the proprietor of some hotel in New York, stating that so and so arrived at that hotel on a given date, and a week or two later died very suddenly. Upon examining the effects of the deceased, letters are found showing that he is a relative of the person to whom the letter is sent. The trunk contains several new suits of clothing, gold watch, diamond studs, silver-mounted revolver, etc., all of which will be forwarded by express, provided said relative will forward the small amount of the unpaid board-bill of the defunct....Some of the towns in Connecticut have been victimized by

VENDERS OF TEA,

the article being put up in very handsome pound parcels, and in order that its quality might not be impaired, the purchaser was cautioned not to disturb it, but to keep it in the original package. About one fifth of the top of each package was tea, while the lower part was spent log-wood chips, hay, or whatever rubbish that came handy. We are at a loss to understand why people will purchase of peddlars; if staple articles are offered below the usual rates, there is very likely to be something wrong.

THE WYOMING LOTTERY

still sends out its circulars and schemes, in spite of the law prohibiting the use of the mails for such purposes. A correspondent in New Brunswick informs us that the circulars sent him are mailed from the New York P. O. The officials there have a sharp eye for such matters, and this evasion will not succeed long. The British provinces appear to be a favorite ground for these lottery chaps, and they offer most flattering inducements to persons to take agencies. Still the law begins to pinch, as we notice they caution their correspondents to remit money

only by express, to which we add another caution—don't remit it at all....There is no subject on which we have more frequent inquiry, or about which there are more complaints, than that of

TREE PEDDLERS AND NURSERY AGENTS,

nor is there any more difficult to treat. If we say that these men as a class are swindlers, and to be shunned, we do injustice to the few honest men engaged in the business. Some excellent concerns send out agents, who are properly authorized, and for whose acts their principals are responsible, but for every one of these there are in the field a dozen irresponsible chaps, who represent no one but themselves, who get orders and fill them with whatever rubbish they can buy cheapest. The only possible reason for buying of an agent at all, is a small saving in freight. If an agent takes orders from a dozen persons in a neighborhood, the whole lot of trees can be delivered in one parcel, and distributed to the individuals ordering them, at much less expense than the parcels could be sent separately. But the saving of a small sum is poor economy in the matter of trees, which, if not true to name, are worthless, and it is safest in all cases to deal directly with the nursery. If circumstances make it advisable to order of an agent, make sure that he is properly accredited. If an agent offers any unusual things, or novelties that no one else has, you may be sure that he is a fraud. Have nothing to do with "self-pruning grape vines," pears grafted upon the "French Willow," "tree strawberries," or any such impossible things. Especially be careful what agreements you sign.

MEDICAL MATTERS.

present but few novelties. It is amusing to see how the proprietors of quack medicines appeal to the love of the marvelous, and the stories of the origin and discovery of these various nostrums, if gathered in a volume, would make a series second only to the Arabian Nights in absurdity and impossibility. The majority owe their origin to the Indians. It seems to be a popular notion that the savages, the most degraded and ignorant of all things human, possess wonderful skill in treating disease, an impression that a slight acquaintance with Indian life would soon dispel. Yet more than half the quack medicines are accredited to them. Here in one Mrs. Leggett, who says: "I have gone from the Indian medicine man of the Nevada, to the very pink of science, (!), in order to inform and avail myself of all the information to be had on this subject, and must say that the Indian is far in advance, so far as relates to botanic medicine." Here is also "Doctor White," who "traveled through Europe and America, and the various inhabited islands in the different parts of the world, and among the Red Men of the forest," all to get his wonderful stuff. This White pamphlet is really a curiosity. The most horrible botch of a wood engraving is given to illustrate "Dr. White and his wife together with their blooming, healthy, and interesting children." We are told on the next page that the Doctor is "an extremely rich man, with an income of about five-hundred-thousand dollars annually." We should think that so wealthy a man would, as a matter of family pride, put forth a better family portrait. It is not easy to see why one so rich, "and the owner of a number of fine elegant ships, which sail in different directions to every part of the world," should be offering premiums to those who get up agents for his stuff. We thought Mother Noble and Eddie Eastman were the sublimest efforts in literature of this class, but this Doct. White makes it necessary for these to look to their laurels....Look out for

HUMBUG COMMISSION DEALERS.

During the peach season there are always more or less rascals who pretend to be commission men, whose only store is a few square feet of side-walk. These bogus dealers do not confine themselves to peaches, but of late have tried to do a little in the dairy line. We have an eye on some chaps of this sort, but we are not quite sure enough to call names. Meanwhile let every one who has farm produce of any kind exercise caution as to the character of the dealer to whom he consigns it. The commission business, from its very nature, is a difficult one, and a dealer who is perfectly honest will, even in doing his best, often disappoint the consignor. Do not change your commission house for a slight cause; if the sales average well, stick to the same place. Glib-tongued, plausible chaps, are all over the country soliciting consignments. Make no promises, and do not send produce to any one, without first ascertaining something about him. It would be very unjust to say that those dealers who do not advertise in the *American Agriculturist* are unsafe, but it is very proper for us to assert that those who *do* advertise here are men of established reputation, to whom consignments may be made with confidence. Beware of the bogus chaps, who have no "local habitation," and no "name" but a bad one.

**Meeting of the Swine Breeders' Convention.**—At the adjournment of the meeting of the Swine Breeders' Convention, held at Indianapolis, it was left to the judgment of the chairman, Frank D. Curtis, Esq., of Charlton, Saratoga Co., N. Y., to choose the time when circumstances seemed to require a re-assembling of the convention. We understand that a circular has been issued to the committee by the chairman, suggesting a meeting of the convention at Philadelphia during the Centennial Exhibition. If a sufficient number of members of the Association, or of persons interested in swine breeding, shall convey to the chairman a favorable view of his suggestion, the meeting will be called. It would certainly seem that there could be no better opportunity than this for a second convention. The first, held under many disadvantages, and having all the drawbacks of a new enterprise, has done a real service of immense value to all breeders of swine. It has reconciled conflicting, adverse, and lukewarm interests, it has given standards of excellence for the various breeds, which have been accepted without question by all parties; it has met in this critical age with no adverse criticism, and its usefulness has been universally acknowledged. It has brought a certain degree of order out of chaos, and one of its first fruits has been the reduction of the Berkshire breeding to the rule of an authentic record. If nothing more remained to be done, the convention would have had a good excuse for its organization; but its work is as yet only begun, instead of having been finished.

**The "Campaigns" Political** have not yet developed very actively. **Our** campaign starts to-day—against ignorance, poor crops, unskillful labor, etc. We ask our friends to help make it an "active" one, by calling the attention of their friends and neighbors to the offer on page 325. It will be seen that for **11** cents a month, (if subscriptions for 1877 is sent in this month,) or less than one-third of a cent a day, the *American Agriculturist*, with its many fine illustrations, its multitudes of hints and suggestions, etc., can be enjoyed from now to the end of 1877. Please let the non-readers understand this.

**Horticulture at the Centennial.**—Last month we gave some account of the contents of Horticultural Hall and its annexes. We had prepared a detailed description of the out-door exhibits for the present number, but our columns are so crowded, and we have already so much about the Exhibition that this is withheld for another month. It is desirable, however, to call the attention of those who visit the Exhibition to this out-door display, as it contains much that those interested in horticulture can not afford to overlook. There are about 40 acres devoted to out-door planting, and while a portion of it is done by the Bureau of Horticulture as a part of the decoration of the grounds, the greater part of the planting is made up by the contributions of exhibitors. These grounds, which presented a sorry aspect in the month of July, are now, in September, daily increasing in beauty. The sunken parterre, extending directly west from Horticultural Hall, probably furnishes the longest continuous example of ornamental planting in the country, and does much credit to Mr. C. H. Miller, Chief of the Bureau, especially when we consider the small number of well-marked plants that he had to work with, and the difficulty of procuring even these in sufficient numbers to work out his designs. Upon each side of this central parterre are the plots of exhibitors, some who have aimed at simply showing individual plants, while others have given excellent examples of ornamental bedding, in some cases using plants, which in the aggregate are worth hundreds if not thousands of dollars. Of course, there is some rubbish to be seen; it could not be well otherwise, where each has a plot to plant out as he pleases, but there are not enough of these indications of want of taste to mar the general effect. As in a brief note we can not enumerate the leading exhibitors, we refrain from mentioning any at present, but content ourselves by advising all lovers of rare and interesting plants to give the grounds on both sides of Horticultural Hall, as well as on both sides of the central parterre, a careful examination. In nearly all cases the exhibition is made instructive by means of careful labelling, and there are here brought together rare plants that at another time can only be seen by making long journeys from one nursery to another.

**Uncle Sam as a Gardener.**—In the grounds near the Government Building is a large plot, filled with exotic economical plants, some of which may ultimately be introduced in our southernmost States with profit, and is well worthy of examination. Another large plot is planted with the leading agricultural crops of the country, no doubt intended to give visitors from abroad a glimpse of our principal crops, from tobacco to Indian corn, at one view; here are to be seen Ramie, Jute, and several other southern products, not omitting cotton in full vigor, all of which will be novel and interesting to many visitors from the Northern States.

**"All the Eggs in One Basket."**—Mr. J. B. Olcott, the facile and often facetious agricultural editor of the "Hartford Courant," referring to the old adage, "Don't put your eggs all in one basket," says, why not? "If the eggs are good and the basket sound, the one a fitting receptacle of the other, and the owner sober and attentive to his business, why not jog along to market so in any civil community, as well as if the eggs and the efforts were scattered around in odd lots. ....Why not, where a man is fond of chickens, and has a good place to keep them, and is generally 'lucky' with fowls, go ahead and make a business of raising them and their eggs?"....Then referring to Mr. Stoddard's "Egg Farm," a work recently issued by Orange Judd Company, [see advertisement,] says: "....It is not offered as an exact pattern for everybody, or perhaps for anybody. It is meant to be suggestive—meant to cross-plow, fertilize, and seed the brain, as every good book is. It is sometimes more valuable to us in practice to see a thing so clearly set out in print that we decide not to do it, than if we accepted the plan, and proceeded to its execution. It is decision we readers need, and the material wherewith to make up our minds. Mr. Stoddard's Egg Farm will assist the poultry fanciers about that. Maybe we shall see therein that we have no natural capacity or culture for the business. That will be a heap of money saved. There is one thing you may be sure of: the work was contrived and written right here in our midst. There are no outlandish conceits in it to puzzle a Yankee, though some practical acquaintance with poultry may be needed to appreciate all the difficulties and necessities, for which Mr. Stoddard would provide."

**The Farmer's Veterinary Adviser.**—This is a very useful work by Professor James Law, V. S., of Cornell University. It treats of the diseases to which farm animals are subject, in a very plain, practical, and thorough manner. The author's methods of treatment are sufficiently simple and free from technicalities, that any owner of a sick animal can easily follow the directions given. For farmers and most veterinary surgeons in rural districts, this Adviser will be found useful and trustworthy. The work is published and sold by the author, Prof. James Law, Ithaca, N. Y. Price $3.00.

**Tanning Leather.**—"J. H.," Saluda, S. C. It would be impossible to give in the *American Agriculturist* sufficient directions for tanning and preparing leather to be of any practical use. A book, which is intended to be a standard American work on this subject, is now in course of publication. The author is the well-known tanner, Jackson S. Schultz, and the book is sold to subscribers only at $5 a copy.

**The National Agricultural Congress** will hold its Annual Meeting in the Judges' Pavilion, on the Centennial Grounds, at Philadelphia, Sept. 12 to 14. Addresses will be made by the President, W. C. Flagg, of Ill., Commissioner T. P. Janes, of Ga., Joseph Harris, of N. Y., and others.

**Coal-Oil Barrels.**—"D. M. W.," Blair Co., Pa. We doubt if there is any process, not too costly to be practical, by which you can clean oil barrels, without removing the head. It is said that they may be so prepared by a thorough burning out of the interior, that they may be used for cider, without injury to its taste or smell, but we have not had occasion to try it.

**Ventilation of a Drain Well or Cesspool.**—"J. E.," Germantown, Pa. To carry a tin pipe 3 inches in diameter from the well or cesspool into the kitchen chimney, as near the fire as possible, would be an effective manner of removing and gases that might be evolved from the drainage. To bring the gases into as close contact as possible with the hottest air of the chimney, would be to dissipate them most effectively.

**Perpetual Motion.**—"C. A. L.," Anamasa, Iowa. There is no premium offered for the discovery of perpetual motion by any government in the world, notwithstanding the very prevalent popular delusion that there is. The idea itself is a relic of the dark ages, in which the philosopher's stone, the elixir of life, the fountain of youth, and other impossible expectations were "for man's delusion given."

**Thrashing Machines at the Centennial.**—The result of the exhibition test of thrashing machines at Philadelphia was rather in favor of the tread-powers, as being the most economical both in power and time. Thus a one-horse tread-power thrashed 1,000 lbs. of grain in the straw in 34 minutes, with an elevation or incline of the tread of 15½ degrees. The yield was 319½ lbs. of grain, or 5½ bushels, equal to 9½ bushels per hour. Two-horse tread-machines thrashed the same

quantity in from 14½ to 19½ minutes. A 6-horse steam-thrasher took 14½ minutes to thrash 2,000 lbs. of grain in the straw, yielding 598 lbs. of grain, or nearly 10 bushels; equal to 40 bushels per hour. A 10-horse steamer thrashed 2,000 lbs. of grain in the straw in 13 minutes, and another occupied 15½ minutes, each yielding 10½ bushels of grain in the times mentioned. A one-horse tread-power is thus seen to be capable of doing the work of 9½ men with the flail, allowing 10 bushels of grain as one day's work for a man. The two-horse powers, on the average, exactly doubled this work The 6 and 10-horse power steamers each did the work of 40 men. The deduction clearly is that where the harvest is a small one, a one or two-horse tread-power is the most economical machine; more especially, as the horses, if not at work on the machine, would be idle.

**Basket Items continued on page 353.**

## How to Cure Fodder Corn.

BY L. D. SNOOK, YATES CO., N. Y.

Fodder corn is very difficult to cure in the field, so that it will not suffer damage when housed or stacked. The simplest method is to cut with a mowing machine, letting it remain spread upon the ground for two or three days, or longer. If the weather be cloudy, it is raked into windrows with the horse-rake, made into large bunches, and topped off with a bundle tied firmly near the buts, and adjusted over the top, as in figure 1.

Another plan is to cut by hand with a cradle, or with a self-raking reaper, in either case letting it lie at least half a day, and if the weather be dry, three or four days will be all the better, as much moisture will be evaporated; besides it can be then bound with stalks better than when not wilted. Should the cut stalks be from four to five feet in length, from eight to twelve bundles may be placed in a shock, and tied firmly at the top, as in figure 2. Should the stalks be but two to three feet in length, I stand about twenty-five bundles upright for a foundation, and upon this place a sufficient number more, to top the whole out nicely; then tie the tops

Fig. 1.—COCK.

Fig. 2.—SHOCK.

of the last tier, and the stack will stand a heavy rain, and present a neat appearance, as in figure 3. The stalks may be cured previous to binding, by the plan shown in figure 4. Two crotched sticks are driven in the ground, upon which is placed a rail or pole two or three feet from the ground, upon either side of which a row of unbound stalks

Fig. 3.—STACK OF LONG FODDER.

is placed in a slanting position, and fifteen inches in thickness; the ends should remain open for free circulation of the air. The thinner the course upon either side, the quicker the stalks will be ready to be bound and housed. Figure 5 illustrates a plan in which the stalks do not lie in contact with the

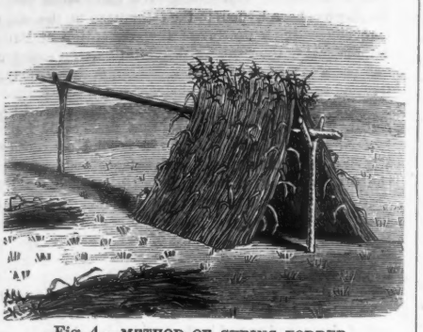


Fig. 4.—METHOD OF CURING FODDER.

ground. Rails or poles, six feet in length, are placed upon the ground ten feet apart; upon these are laid other poles or rails, upon which are piled two tiers of bundles from four to five feet in hight.

Fig. 5.—METHOD OF STACKING FODDER.

These are covered with rows of bundles placed in a slanting position upon the top. By this plan the buts are placed upon the outside; and should they be damp or green, an air space may be left between the tiers.

## The Centennial Exposition—Go and See It, if Possible.

We visited the Exposition early in July for a week, to take a general survey, reserving a more careful, thorough examination of details until the cooler days of September and October. Having visited three "World's Fairs" abroad, two in London and one in Paris, we are able to speak somewhat comparatively. Referring to the largest of these, the Paris Exposition of 1867, we consider the Philadelphia Exhibition of greatly superior value for *our* people generally. The former greatly exceeded us in costly works of art—the accumulation of hundreds of years—but in the things that have to do with the everyday life and work of the American people, our exhibition is far ahead.——In Paris the whole exhibition was crowded into a limited area; in Philadelphia there is abundant room for showing up the multitudinous articles to the best advantage for study and investigation.——In Paris, the personal comfort of visitors was little cared for. To obtain a drink of water, a seat for resting, or a retiring room, one had to hunt for it, and pay for it. In Philadelphia, these personal conveniences, so important to one spending a weary day, or days, are provided quite abundantly and freely. The single admission fee pays for everything—except refreshments ordered, 10 cents for a ride up and down the elevator for those who do not choose to ascend the commodious stairs, and the 5 cents for 3½ miles ride all around the grounds on a steam railway.

It would be useless to undertake a detailed description of the Exhibition—several large volumes would be required for this. There is the *Main Building*, 1,880 feet long and 464 feet broad—a larger space than a **20** acre field, or 350 lots of 25 by 100 feet each—and all this space packed full of articles, few of which are not worth examining. An "Annex" of this building, covering 2 acres, is filled with carriages, etc.——Next in size is the *Machinery Hall*, 1,402 feet long and 360 feet wide—nearly **12** acres—mainly filled with useful machinery, of which a good deal is in active use.—— The *Agricultural Building* is 826 feet long and 540 feet wide (over **10** acres), filled not merely with agricultural machinery and implements, but an infinite variety of productions of the soil in our own and other countries. And near this building are several other spacious structures for farm wagons, for orchard products, grains, honey, etc. ——The *Horticultural Hall*, 383 feet by 193 feet (nearly **2** acres), with 40 acres more, on which are growing almost every variety of ornamental plants to be found in all the horticultural establishments in our whole country, and many from abroad.—— The *Art Gallery*, or Memorial Hall, 365 feet by 216 feet (nearly **2** acres), constructed of granite, iron, and glass, at a cost of $1,500,000, with a supplementary building still larger, and the whole filled with paintings, statuary, etc.——The Government Building covers nearly **2** acres, and to examine the contents of this alone would be worth a journey of a thousand miles and several days' time. —To go through the aisles and cross-walks of these seven buildings alone is a journey of some 25 miles! and every step of the way one sees on either hand some objects of interest.

But the above are only a part of what is to be seen. There are a hundred or so of other buildings, some of them large, which are worth a visit, such as the Dairy Building, Leather Building, Glass Works in operation, Women's Pavillion, Twenty or more State Buildings, all different, and each with peculiar attractions; and nearly as many more erected by foreign Governments. Some of these, as the Kansas and Colorado Building, the Japanese structure, etc., contain as much to interest one, as is usually found in a whole "State Fair." The buildings devoted to special objects, individual manufactures, etc., scattered here and there, over the **236** acres devoted to the Exhibition, are too numerous to be detailed here.—It is literally a "World's Fair," for almost every part of the whole world has sent here more or less of the products of its labor, of its mechanical skill, or of its soil. The like of this exhibition has never before been seen in our country, or its equal in any other, and we can not expect another during the present generation.

Every man, woman, and child of 12 years old and upward, who can possibly do so, should visit Philadelphia sometime during September or October, and spend a week or more—better two or three weeks, or more. We would say go, if but two days can be taken to simply walk through the principal portions, but a week will be found a very short time, even to the strong, vigorous man.

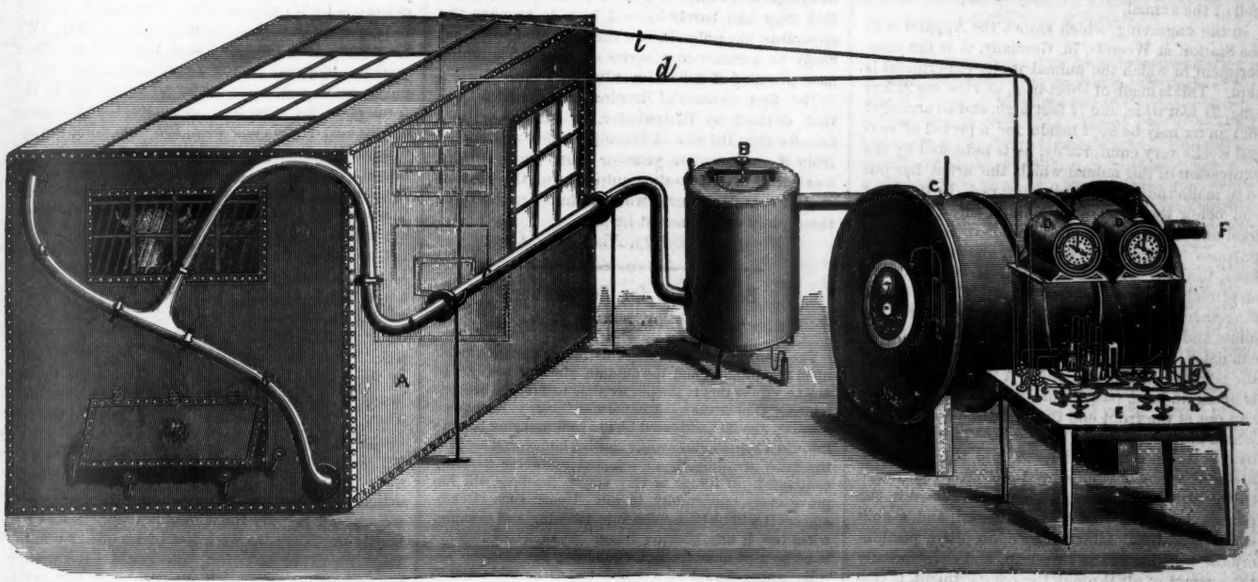
*Who can go?* Comparatively few will feel that they can afford the expense in these "hard times." Let us look at this question. If there were an enterprise promising a sure return of 20 per cent per annum, a great number of people would in some way manage to get together at least $100. We think the information gained, and the satisfaction continually derived from a visit to this exhibition, would be worth $20 a year for all the rest of one's life. The cost of a new dress, of a new carpet, of some intended improvement, any one of which can be delayed for a year, would pay the expense of a week's visit to Philadelphia of one or more persons, according to the distance.

*What is the cost?* First, the cost of traveling, which will depend entirely upon one's locality. Second, the cost while in Philadelphia. *a*, Fifty cts. for entrance; *b*, 25 to 75 cts. for a lunch on the grounds. A very good lunch can be obtained for 40 or 50 cts. at the "Café Leland," in the south middle of the Main Building, or at the German Restaurant, near Horticultural Hall, and at some other places. (Usually two persons can lunch on each "portion" served at the restaurants, which is quite a saving where there is a family together.) *c*. Rooms with bed are to be had in large numbers adjacent to the

exhibition main entrances for $1 a night—not very spacious rooms, or very luxurious beds, but those that will answer for a week or so. Add 60 cents to $1 for supper and breakfast, to be got at the hotels or restaurants without or within the grounds. There are numerous boarding houses in West Philadelphia, which take persons for $12 a week, or $2 a day, furnishing lodging, supper, and breakfast. Every train going into the city is traversed by agents, who furnish tickets for lodging, breakfast and supper, for $2.50 per day. One at all accustomed to travel, or make his way, can usually do quite as well to look out for himself after arrival. Those who wish to economize the most possible, can thus get along quite comfortably for $3 a day, including entrance fee. By careful economy in lunches, etc., many can reduce this amount 50 to 75 cents. One with a family of children can make the average somewhat less. We have allowed nothing for purchases, or other extras; almost every one will desire a few dollars for such purposes. We are only writing in the interest of our readers, desiring as many as possible of them to enjoy and profit by this opportunity, and we are trying to figure out how it can be done.—By the above it will be seen that one can go and spend 10 days at the exhibition for $30—perhaps $25—in addition to the excursion ticket to and from Philadelphia—less for less time, and more for more time there.

How to Examine the Exhibition.—Whether one goes to Philadelphia or not, it is well worth while to get a copy of the "Authorized Visitor's Guide." (Any book seller will supply it, or one will be mailed from the *American Agriculturist* office, post-paid, for 25 cents). Get this now and study it beforehand.—Arriving at the grounds we advise the following: Enter at the main (south) gate; turn to the right; pass leisurely down the center of the Main Building to its middle; ascend to the top by stairs, or better by the elevator (10c.), and with the map in the Guide before you, look down upon the whole grounds, and locate the leading buildings. Descend and continue on to the east end; cross over the avenue to the north and enter the open railway cars, and (fare 5c.) ride around the whole grounds, stopping off, on returning, in front of the "House of Public Comfort." Cross over to east end of Machinery Hall, and pass down through the whole length of this. Go up Fountain Avenue to the Government Building, and pass through the middle of this, east and west, and north and south. Leave the north-east end; cross over to the Women's Pavilion, and take a glance through it. Then cross over to your own State Building and rest. Next enter the cars and ride (5 cents) to the Brewer's Building. Pass through this and the Farm Wagon Building, into Agricultural Hall. Walk through to the south-east corner, and ride over the Elevated Railroad (3 cents) to Horticultural Hall; walk through it, ascend to the second story, and see the grounds around it on every side, especially at the west. Pass south to the "Annex" of the Art Building (102), and through this into and through the Main Art Building; then west to the Annex of the Main Building (106), and you are near the main entrance. If one merely walks leisurely along, without stopping to particularly examine any objects, this can all be done in two to five hours, and the visitor will have a general idea of *what* there is to be seen and *examined*. This round may be extended to a day or two even, if one is to spend 8 or 10 days or more, but we advise hastening on through this first general view, and not stop to see anything particularly. Each point will then retain its novelty until specially visited. Next to the buildings named, one will be interested in the Leather Building (7), the Glass Building (15), the Kansas Building (157), the Penn. Educational Building (122), and so on. There are few of the smaller structures, all over the grounds, that will not repay an examination.

Having taken the above general survey, one can divide the time at his command, so as to give most attention to those things that most interest him. Remember that sight-seeing is tiresome to body and mind, even for the strongest man. Therefore stop, sit down, and rest 5 to 10 minutes every half hour, or every hour certainly, whether you feel weary or not. You will thus see more in the course of the day. If one merely takes lodgings, he can get his meals, at least those after breakfast, inside the grounds, which are open from 7½ A. M. until dark.




RESPIRATION APPARATUS USED IN FEEDING EXPERIMENTS WITH OXEN AND SHEEP AT THE AGRICULTURAL EXPERIMENT STATION AT WEENDE IN GERMANY.

## Science Applied to Farming.—XXI.

BY PROF. W. O. ATWATER.

### Experiments in Cattle Feeding at the German Agricultural Experiment Stations.—The Respiration Apparatus.

Every thinking farmer in America feels the need of more definite knowledge of the effects of different kinds of fodder and ways of feeding upon his stock. It is important to know what are the relative values of different foods, what ones are best for working or for fattening animals; what best fitted to produce milk for butter or for cheese, and so on, and in what proportion and amounts they should be used, so as to bring the best return with the least cost. These things can be learned only by feeding trials with different animals and kinds of food. The great trouble with our ordinary farm experiments is, that they are not made with sufficient accuracy and thoroughness to give definite and decisive results. The experiments in cattle feeding at the European Stations are carried out with an amount of patience and painstaking, with an outlay of money for apparatus and labor which, to those not versed in such matters, is quite astonishing. Connected with the Stations are barns, stables, and chemical laboratories, so that provision is made not only for keeping and feeding the animals, but for accurately measuring, weighing, and analyzing the food they consume, the dung and urine they excrete, and even the air they breathe. One great result of these experiments has been to show that economical feeding is not simply a matter of so much hay, roots, grain, or other foods, but depends rather upon the ingredients of which the foods are composed. To use foods economically, we must know what their ingredients are, and how they supply the wants of the animal's body. We can then decide what amounts and proportions of different foods we must use to supply the needed ingredients in the proper proportions and with the least waste.

### What is done with the Food in the Body.

If we could watch the processes of nutrition and assimilation inside the body of the animal, if we could follow the course of the particles of gluten and starch as they are separated from the hay and grain in the stomach, taken into the circulation, and finally stored away as flesh or fat, or made over into the casein and butter of the milk, or consumed in respiration, the solution of these questions would be easy. But this cannot be done, and we must employ an indirect method of experiment. The method which the patient and skillful German experimenters have devised for learning how the animal disposes of the food in its body, consists, practically, in determining all that goes into the animal's body and all that comes out of it. Then by applying known principles of chemistry and physiology, which we have not space here to explain, they infer how each ingredient of the food has been used in the body. The whole amount of the food is learned by accurate weighings and measurements, and its composition determined by chemical analysis. Thus we learn how much of albuminoids, carbohydrates, and fats, of water and mineral matters, the animal consumes. These undergo various transformations in the animal. The part which is not digested passes off in the solid form, as dung. The digested portion is used in the growth and in the continual rebuilding of the different parts of the body, as flesh, fat, bone and milk, and in respiration. When its work is done, the products of its transformation are given off, either in a liquid form in the urine, or in the form of gas or vapor in respiration through the skin, and, more especially,

the lungs. The final products of the use of the food in the body are, then, the excrement, the urine, and the expired gases and vapors. To gather all these and determine their amounts and composition, the Respiration Apparatus has been devised.

**The Respiration Apparatus.**

This consists essentially of a large chest or compartment with air-tight walls, in which is placed an animal, for instance an ox. The interior is furnished with arrangements for supplying food and water and collecting the excrement and urine. By appropriate machinery a current of fresh air is introduced through openings provided for the purpose, and after it has supplied the wants of the animal for respiration, is drawn out, bringing with it the gaseous products of respiration, into a gasometer, where it is measured. It is then analyzed, and a comparison of its composition with that before it had passed through the apparatus, shows what material has been added to it by the respiration of the animal.

In the engraving, which shows the Apparatus at the Station at Weende, in Germany, *A* is the compartment in which the animal under experiment is kept. This is made of sheet-iron, and is some 9½ feet long, 7½ feet wide, and 7½ feet high, and so arranged that an ox may be kept inside for a period of several weeks very comfortably, as is indicated by the expression of the animal which the artist has put in to make the picture a bit more real. In the front end below the window is a lid, *l*, through which food and water are supplied, in a box fitted for the purpose. In the rear is a door, shown by dotted lines, through which the animal is admitted, and an attendant can enter if necessary. Inside are arrangements for collecting the dung and urine. The joints and closings are made tight, so that no air can enter except through apertures provided for the purpose in the rear end. A draft of fresh air is drawn in here, passes through the compartment and out at the front end through the pipes *a* and *b*, which unite in one single pipe, *c*. The air passes by this through the cylinder *B*, into the large gas-meter *C*, where it is measured and proceeds thence by the pipe *F* to a large air pump, not shown in the picture, by which suction is produced, and a constant current maintained. By appropriate machinery the working of the air pump, and consequently the current of air through the compartment, is regulated. The amount is shown by the gas-meter. The cylinder, *B*, contains porous stone saturated with water, by which the air is moistened to prevent its carrying away the water in the meter *C*.

**How the Experiments are Conducted.**

Now, as is well known, animals in breathing inhale the air with its oxygen. This latter unites with the carbon and hydrogen of the food, or of the materials formed from the food in the body, and produce carbonic acid, a compound of carbon and oxygen, and water, which consists of hydrogen and oxygen. In fact a combustion takes place in the body just as truly as in a stove, the products of the combustion being the same in both cases. The air contains a very little carbonic acid and water before the animal breathes it, and still more, of course, afterwards. If then we analyze it before and after it passes through the compartment, we can readily tell how much of carbonic acid and water it has gained; that is, how much has come from the animal. Connected with the apparatus are two long small tubes, *d*, *i*; *i* starting near the apertures in the rear of the compartment, while *d* opens from the large pipe *c*. On the table *E*, in front of the large gas-meter, are two small air pumps, *e*, *e*. Connected with these on one side are the long tubes *d* and *i*, and on the other, the two small gas-meters, *D*, *D*. While the large pump is working and drawing the air through the large pipe *c*, the small ones draw a part of it through *d* and *i* and the small meters, *D*, *D*. On the route it passes through the apparatus on the table. *E*, which determines the amounts of carbonic acid and water that it contains. By comparing the composition of the air from *d*, which has been breathed by the animal, with that from *i*, which has not been breathed, we can readily learn how much more carbonic acid and water there is in one than in the other. Comparing the amount thus analyzed with the whole as measured by the large gas-meter, it is easy to calculate how much carbonic acid and water the animal has exhaled. In conducting the experiments, the ox is put in the compartment, the closings made tight, and the air-pumps set to work. At proper times food and drink are introduced by the box at the lid *l*, and after the animal has consumed what it will, the rest is removed. The excrements, solid and liquid, are collected by very ingenious arrangements, it being only occasionally necessary for an attendant to enter to insure the neat accomplishment of this purpose. The weighing and analyses of the food and of the products of its use require, of course, a great deal of time and trouble and expense. Indeed a single experiment often requires the labor and attention of several men day and night for a number of weeks or months. Several years after the Apparatus at Weende had been set in operation, one of the chemists remarked to the writer, who was visiting there, that they had barely learned how to manage the apparatus, the animals, and the food, and were just ready to commence a series of researches which gave promise of definite results.

The first successful Respiration Apparatus was that devised by Pettenkofer, in Munich. It is smaller than the one at Weende, which was copied from it some twelve years or more ago. A third was added in 1870 to the equipment of the Station at Halle, and a fourth was put in operation some three years or so since at Leipsic.

*Wesleyan University, Middletown, Conn.*

## Bee Notes for September.

BY L. C. ROOT, MOHAWK, N. Y.

The labor necessary during this month depends much upon the locality, and the autumn yield of honey. In most sections this is the proper time to prepare bees for winter. One of the most important things to be remembered by the inexperienced is, to avoid inducing bees to rob. In all operations avoid exposing honey, and see that the hives are properly closed, and entrances partially contracted. If forage is very scarce, the bees will improve every opportunity to rob. Under such circumstances it will be best to operate morning and evening, when few, if any, bees are flying. At such times smoke must be used more freely for subduing the bees.

Each hive should be weighed, and if movable combs are used, combs from the heavier swarms should be exchanged with the lighter ones. If after this any hives are found to be too light, the bees should be fed. They should have at least 25 pounds of stores when put into winter quarters. If, as is usually the case with most bee-keepers, partly filled boxes are taken from the hive, as the season draws to a close, the capping of such combs as are partially sealed may be broken, and the boxes put upon the hives when feeding is needed. The bees will remove the honey to the body of the hive, when the boxes containing these dry combs may be packed away for another season's use.

Care should be taken to keep all upward ventilation in hives closed. All holes in the top of the box hives should be well closed, and when mats or quilts are used at the top of movable-comb hives, they should be kept snugly in place. This will tend to keep the hive warm, and help to continue breeding, which is especially desirable at this season.

I consider this and the previous month the very best for introducing young queens, from the fact that when introduced, the stock will rear a much larger quantity of brood than they would have done had the old queen remained. This is especially the case with swarms that are devoted to the production of box-honey. Swarms upon which the extractor is used are usually in much better shape than others for winter, from the fact that each operation induces breeding, thus bringing a large supply of young bees late in the season.

*Correction.*—In Notes for August, p. 289, in 26th line from the bottom, the word "glass" should read "loss."

## The Department of Agriculture—Centennially.

The Government wisely and liberally provided for an Exhibition by each of the different Departments, and one of the most interesting features of the great Exhibition is the Government Building. Here one can get in a short time a better idea of the work of the various Departments than he could by passing weeks at the seat of government. Here, under one immense roof, the War and Naval, the Postal and Treasury Departments, show their materials and their workings; the Signal Service and the Patent Office make displays of great interest. Here is also the Smithsonian, which is a ward of the government, and last, but by no means least, is the Department of Agriculture, the show of which is exceedingly attractive, and creditable to its subordinates. The horticultural division makes a fine display: the museum is represented by numerous and excellent models of fruits, while birds, quadrupeds and insects that are of agricultural interest are displayed. The statistical division presents a world of information by means of large and ingenious maps. The chemist makes an attractive exhibition, and the botanist has a collection which shows the wood, leaves, and flowers, of every tree in our broad territory—a collection that must have demanded an immense amount of pains-taking labor. The exhibition of the Department of Agriculture is highly creditable to every one concerned in preparing it, and an honor to the country. We have more than once said that there was excellent working material in the Department, and that it only needed a head, in order to be of use to the farmers of the country. It seems that Congress entertained some such idea, for in making the appropriation for this exhibition, it placed its disbursement, not in the hands of the head of the Department, but in that of his subordinates, a rather unusual proceeding, but in this case the result appears to have warranted it, as it shows that in this extraordinary duty of making an exhibition, the Department can get along without any other than a nominal head, just as it does in its every day workings. The Monthly Report of the Department of Agriculture for May and June, may be regarded as a Centennial number, as it gives a very full account of the exhibition made at the Centennial by the heads of the various divisions of the Department. Though the Commissioner was ignored in the law directing the exhibition to be made, he is not by any means to be kept in the back-ground, but he comes out strong in this Centennial number in an article entitled: "Cross-breeding of Grain," which we are told is "By the Commissioner"; this was hardly necessary, as we know of no one else in the Department, or out of it, who could have written the article. We do not like to use slang, but extraordinary occasions demand unusual words, and we have no hesitation in saying that this article is a "stunner"—we were about to say a "sockdologer," but not being quite sure as to the full force and meaning of that word, we refrain. We read: "the farmer is especially called upon to bestow industrious thought as well as laborious labor upon the work which he is daily called upon to perform."—We now know what ails the farmer, it isn't too much middleman, or too little Granger, but it is this "laborious labor." Then we are told that "the earth itself is a set of mouths and lungs, which feed upon the natural elements of the air, and imbibe its moisture and light and heat."—It seems rather hard on old Mother Earth to be told she is all mouths and lungs, like some Congressmen—and she "imbibes" too.—Well, it must be so, for we have seen the same statement by the same authority on a former occasion. The article goes on in much this style for over a page. What it is about we are not at all sure, but the final sentence is as follows: "The leaf or flower which protrudes from the glume of wheat is neither an anther, a pistil, nor a stamen, and neither emits nor receives the fertilizing pollen."—Oh Mr. Commissioner how could you stop there?—you tell us what that thing-a-my isn't and what it does'nt, but why not tell what it is and does? Jack Bunsby never gave "an opinion as is an opinion" that equalled that. The absurdity of this sentence may not be so striking to the unbotanical reader, but it would be just as sensible were one to say "The cellar-door or gridiron which protrudes from the chimney of a house is not a boot-jack, a coffee-mill, nor an andiron, and neither mends the cellar stairs nor puts the baby to sleep." One has just as much meaning as the other. We can not boast much of our progress, when at the end of a century, the man chosen to

represent our agriculture publishes to the world such incoherent rubbish as this article. We do not so much care what people abroad will think of us, but we do care what American farmers will think when they read such a production from one who is their official chief. We have received inquiries from California, Ohio, New England, and elsewhere, asking what it all means.—We do not know.

## Ogden Farm Papers.—No. 79.

BY GEORGE E. WARING, JR.

Since writing the last number of these papers, I have passed the whole of a long day, on which there were very few visitors, in going carefully over the display in *Agricultural Hall* at the Centennial. This examination leads me to modify in a slight degree my previous opinion. The impression one gets during the examination of only two or three hours, is what I represented, because this length of time is sure to be mainly monopolized by a few of the more striking features. But on further study it became evident that it is by no means just to say that there is anything like "A good exhibit of the agriculture of almost the whole world." If we take out the barrels, bottles, cans, and boxes, which are filled with whisky, rum, gin, tobacco, cigars, starch, tomatoes, etc., we rob most of the foreign exhibits of their crowning glory, and sadly take away from the brilliancy of the display that even our own country has been able to offer. This is not the place in which to print objections to the products of the still, the wine press, or of the tobacco field, but to see at least one-fourth of this fine building filled with a dazzling display of cooperage, glass-blowing, and label printing, is simply absurd. All this part of the show is beneath contempt, and, as an exhibition, has nothing whatever to do with agriculture—the tobacco exhibit is not quite so subject to this criticism. A pyramid of barrels, said to contain whisky, highly varnished, with gilded hoops and ornamental brands, give one a far less adequate idea of the products of the industry of Canada, than would a simple, printed statistical table, showing the amount of whisky that she produces as compared with other countries. All this sort of thing is a fraud. It pretends to be an exhibition of materials—it is in reality only an exhibition of packages, and packages are not worth sending to a world's fair. Several foreign countries have sent instructive and representative exhibits. Those of Brazil and Liberia are conspicuously so, but with a few notable exceptions of this class, there is more of interest in the Exhibition of Oregon, or Iowa, or Massachusetts, or indeed in Landreth's exhibition of grains alone, than in the whole of those of the great foreign countries. If one is seeking the *beauty* of a display of soil products, no more beautiful example can be found than in the collection of pine cones from California—a collection that surely should find its place in some Eastern museum.

Tucked away in one corner of the building, not open to any one of the main aisles, is one of the most valuable exhibits of the whole show—to one who seeks knowledge for its own sake. It is hardly likely that the silk industry will be widely extended in this country, and it does not seem probable that we shall ever grow tea here, but in the Japanese corner of Agricultural Hall, there is, among other things of subordinate interest, an illustrated description of the tea and silk industries, which is worthy of all admiration. Many of the utensils are shown in their full size, and perfectly arranged for working, and every step of the processes, of the growing and curing of the leaves, of the raising of silk worms, and of the care and supply of the mulberry leaves, is shown by a series of little paintings, accompanied with a plainly written and carefully arranged description of each item of the work. An examination of this display will not be, even from a practical point of view, a waste of time, for it will teach the important lesson that in agriculture, as in everything else, a minute and careful attention to details, makes the sum of a great success. There is one little hint contained here, which may be applicable for some of our uses. It is an arrangement for storing a three or four days' supply of mulberry leaves in such a way as to keep them fresh. It was new to me, but may be common to all silk growers. The leaves are spread in very shallow wicker-work trays, so lightly as to produce no pressure, and these trays are placed one on top of the other in a tight box which has no bottom, and which stands on the ground in a place where it is protected from sun and wind. The coolness and moisture of the earth serves to maintain a fresh condition of the contents.

In the Norway section there is a plow with which I was very much struck. The plow proper consists only of a point and a mold board. Directly behind the point there stands a broad wheel or roller, which takes the place of the sole, and relieves almost the whole friction of the downward pressure of the plow. Behind this, set at an angle so that the necessary size can be given it without coming in the way of the turned furrow, is another beveled wheel, which acts as the landside, and carries the side-thrust. I did not see this plow at work, and could only judge of it on general principles, but it is impossible that it should not, if properly constructed, relieve this severest of our horse-labor of a very large percentage of its severity.

Mr. John Coleman, who was selected by the Royal Agricultural Society of England, as the English member of the Agricultural Group of the Judges of Awards, and whose intelligence, thoroughness, clear-headedness, and great fairness, won for him the high regard of all with whom he was thrown in contact, said of the double furrow plow now much used in England, that after all, its great advantage over others, is due to the beveled wheel which takes the thrust against the land, and so relieves the plow of its greatest friction, (another arrangement of rollers carries the weight and relieves the friction on the sole). This is precisely what the Norwegian revolving land side does, and as this and the sole roller are both adjustable, and have good arrangements for being kept clean, I am convinced that they cover a principle which might be widely and successfully adopted. Quite near to this plow stands a capital full-sized model of the Norwegian sledge, with its fur clad driver, and simply harnessed stuffed reindeer, which must be the delight of all who remember their school book pictures of the reindeer and sledge under the black northern sky, and within a halo of aurora borealis. The Norway harrow, with revolving tines, so often pictured in agricultural papers, is here seen, I believe, for the first time in America.

Beyond a capital self-opening gate from Canada, the above are about all that impressed me in the foreign exhibits—though, of course, farther investigation must have developed more. I found my time again chiefly monopolized by the excellence of the American implements and machinery department, where amid so much that is worthy of notice, it must seem invidious to call attention to particular objects. However, there are a few things sufficiently out of the ordinary run to merit special notice. Among mowing machines and harvesters the improvements are mainly in a class with which visitors to county and state fairs are tolerably familiar, or are at least steps in advance in a familiar direction. Here there appears an entirely new departure in the direction of vibrating movements—as for the knives of mowing machines. The mowing machine called the "Haymaker," may not be, and probably is not the best, for the reason that it has not had the years of skillful improvement to which these implements generally have been subjected, but if I know anything of mechanics, its curious gimbal joint "wobbling" movement, is a new departure in agricultural mechanics which will in time carry it to the very head of the list—I gathered also that this was Mr. Coleman's opinion. The movement is doubtless applicable to all agricultural implements where a vibrating movement is needed. The fence making machinery, for the boring of holes in posts, and the turning of round tenons to fit them—so arranged that the panels may be set at any angle, (if a snake fence without post holes is desired), must be of great value. I asked Mr. Coleman what he considered the most important improvement in the whole implement department, and he at once and decidedly gave that honor to Stratton's apparatus for loading hay on to wagons. He subjected this apparatus to the severest tests at the trial of harvest implements at Schenck's Station, and said that its action was simply perfect, the whole work being done perfectly and completely by the forward movement of the wagon as it passes along the windrows—without other manual assistance than that of the man who stows away the load.

One can never close any description of any part of the International Exhibition at Philadelphia, without the saving clause that all his efforts have been entirely inadequate, and that no description can give a fair idea of what is to be seen in any department. The immensity and variety of the whole are simply beyond the power of words to convey, and my own impressions concerning it all, were most tersely expressed by Mr. Judd, whom I met in the Government Building, and who said "I shall tell all our readers that they must come, even if they have to sell an acre of land."

Mr. Coleman and I got away from our duties as Judges, to devote a day to visiting the farm of Mr. James Young, at Middletown, on the Susquehanna, below Harrisburg. Mr. Young is a shrewd, thorough going Pennsylvania Yankee, who has accumulated a large fortune in business, and who realized fifteen years ago the necessity for anchoring a part of his investments in our fundamental industry. He has bought in the immediate vicinity of his town eight or ten farms, aggregating 1,200 acres, and has applied himself zealously—spending money without stint—to bringing them to the highest state of cultivation. So far as I know this is the best and the best managed farm east of the Alleghanies. If we except his large herd of Jersey cattle, there is not a single element of "fancy farming" about the whole establishment. Everything is plain, solid, substantial, and good. Much of the land was subject to injury from the accumulation of surface water, and much of it was rendered nearly valueless by underground springs. These have all been thoroughly drained by the opening of ditches; by the alteration of the surface conformation, so the surface water should flow off; and by the making of underdrains wherever the ground showed a springy condition. Small fields have been thrown together until the average size is from 40 to 60 acres. Lands worn out by a long course of skinning, have been improved by thorough cultivation, by the abundant use of manure, and by deep plowing, until they have been brought to a very high average of fertility. Every year, from 250 to 300 acres of corn are grown, (averaging from 60 to 70 bushels per acre), and the whole crop is fed on the place—the corn-fodder being cut and steamed with meal and bran. About the same area of wheat is grown, together with a wide stretch of rye and oats. Hay is largely sold, but, by the use of the steamer, the straw and corn-fodder are made available for feeding, and the enormous manure heaps, which at the time of our visit were being hauled out to manure the wheat fields, attested the extent to which the produce of the farm is consumed at home. We bantered Mr. Young a little as to the amount of money he must have expended in bringing his large farm to this condition, but were silenced by his reference to the "ducks and drakes" that had been made of his other investments in coal, iron, and lumber industries, from which the bottom had entirely dropped out. Let it not be supposed that Mr. Young's agricultural success has been bought with money alone, or that it maintains itself as an investment in government securities would do. Every step of its progress has called for the most persistent and unremitting labor and attention, and there is no prospect that these can ever be relaxed. Industry and close attention have shown here as well as elsewhere to be the leading elements of success in farming. Mr. Young's Jersey herd illustrates very fully all that I have said on the subject of breeding for fancy colors. Conceiving the idea that fashion and high prices were tending in the direction of "solid color and black points," Mr. Young has made these his leading aim, and has certainly succeeded in get-

ting together the most striking uniformity in these respects that I ever have seen; but, as is almost universally the case, his eye has wandered, in seeking these points, away from the true purpose of Jersey breeding, which should be to increase the amount of udder products. Among the large stable full of solid-colored animals, there are two or three of striking excellence, but the majority were well down toward mediocrity as milkers, while in an adjoining stable—to which he had banished the animals showing white marks—there were several of excellent quality, and one, which to my mind, was in beauty and in quality very far ahead of all the rest of the herd.

## A "Half Stone" House for $3,000.

BY S. B. REED, ARCHITECT, CORONA, LONG ISLAND, N. Y.

This plan is designed for a substantial, convenient, and inexpensive country house. It has two full finished stories with well lighted apartments of good size, and a large cellar and attic. It has also the merit of architectural beauty, well adapted to a commanding location....**Exterior** (fig. 1).—The "half-stone" composition of the side walls, and the strong outlines and slating of the main roof give to this structure a rustic, yet substantial appearance, affording both diversity and picturesqueness, as shown in the variety of the openings, and irregularity of the several parts. The front and rear elevations are similar; by changing the entrance doors and stairs, either side may front the road. The details of exterior finish are so simple, and easy of execution, that any "modification for the rear" is undesirable. Inharmonious and unsightly curtailments in the rear finish have a depressing influence on those obliged to face them daily, which can never be overcome by knowing there is a good front....**Cellar** (fig. 2).—Hight, 6½ feet, of which 4½ feet is below the ground surface, and therefore (with its thick walls), frost proof. It is always important to provide for carrying off the poisonous vapors always generated in damp cellars. For this purpose side openings are made near the ceiling into one of the flues of each chimney. These flues extending to the top and warmed by contact with the fires of the upper stories, have sufficient draft to constantly change the cellar air and prevent its ascent through the living rooms....**First Story** (fig. 3).—Hight of ceilings, 10 feet. Here are conveniently placed; three large rooms, a hall, china closet, and large pantry. Each large room has commodious windows with views in two directions. The Pleasant Piazzas at both the front and rear of the Parlor, extend over and protect the entrance doors....**Second Story** (fig. 4).—Hight of ceilings, 8 feet. The divisions are very simple, a hall, four chambers, four closets, and a bath-room. Light railings may be put on the roofs of the Wings and Piazzas to form pleasant Balconies to the windows of this story. One such balcony is shown over the wing roof (fig. 1); the others may be similar. The small cost of these devices is fully repaid in their usefulness for airing purposes, besides imparting a cheerful appearance....**Garret or Attic.**—This story is thoroughly floored, but otherwise unfinished. Should additional chambers be required, partitions may be set over those of the second story, duplicating that plan, with rooms having the same hight of ceilings. The Stairs are placed immediately above those of the lower stories, are ceiled in, and have a door at the foot....**Construction.**—The durability, general abundance, and substantial appearance of stone, make it the most desirable and appropriate material known for the exterior walls of any building. The cost of cutting and dressing such material ready for use is the principle barrier to its general adoption. By using bricks for corners and for the finish around the openings, the most expensive item of stone-work is saved. They need only to be "random dressed" and laid nearly in the shape in which they are quarried, as more particularly described in the July *American Agriculturist*, 1876. When such walls are carried beyond the hight that is convenient for the handling of the materials, the expense of their construction is largely increased. It is for this reason that the "half-stone" method is particularly valuable. In this plan the stone-work extends only to the hight of the ceiling of the first story; to this hight the materials may be readily wheeled on trestled scaffolding, while to double this hight would require the use of the tedious derrick, and additional help. The upper stories are framed of the usual sized timber, and raised on the stone walls, which in this case become their foundation. The main roof is constructed as shown in the *American Agriculturist* for June, 1876. The hight requiring siding is 4½ feet, or including water table and cornice, 6½ feet from the stone-work of the first story to the slating of the roof. The main roof covering is of dark slate laid on tarred felt. At or near the floor line dividing the upper stories, it is appropriate to indicate the division by the use of tinted slate, which may be laid in close courses or in simple figures as shown on the elevation. The roofs of the Hooded and Dormer Windows are also slated. The deck of the main roof, and the roofs of the piazzas, are covered with I. C. charcoal tin. The wood finish is made of simple design, devoid of all efforts at pretentious display, each part being chosen with especial regard for its utility and appropriateness. The Trusses, Piazza Columns, and Soffits are worked of timber neatly stop-champered, imparting a rustic appearance to them, in keeping with the stone work. The Water Tank is placed in the attic, directly above and in line with the Bath-tub and Kitchen-range, favoring the most practical plumbing. The Soil-pipe leading from the Bath-room floor passes down through the closet adjoining the kitchen chimney, to the Sewer-pipe, which is laid below the cellar bottom. The bad smells and gases arising from confined sewage may be easily disposed of by the insertion of a 2-inch pipe into the closet trap (at its highest point), and connecting it with a flue of the adjoining chimney. All inside plastering is of three-coat work. The casing of the bath-room and around all plumbing is in hard wood; all other trimming of clear pine. The Newel Rail and Baluster on the first story flight of stairs are of black walnut. All work usually painted has two coats of best lead and linseed-oil, with stainers to give the body (outside), a light gray, and trimmings in imitation of "Nova Scotia stone." Inside, Parlor and Hall, in grays; Dining-room in grays and drabs; Kitchen in drabs; Chambers, white....**Cost.**—Prices of building materials are nearly as low as they were before the war; many kinds are really selling for the cost of their production or manufacture. Labor is also very cheap, nearly at old figures. Those contemplating building, and having the means at hand to do so, need not wait for a more favorable time. As soon as general business improves, there must be a "rise" in materials, especially such as requires to be manufactured. The estimate appended includes the cost of all materials and labor for good work at the prices now ruling near New York city.

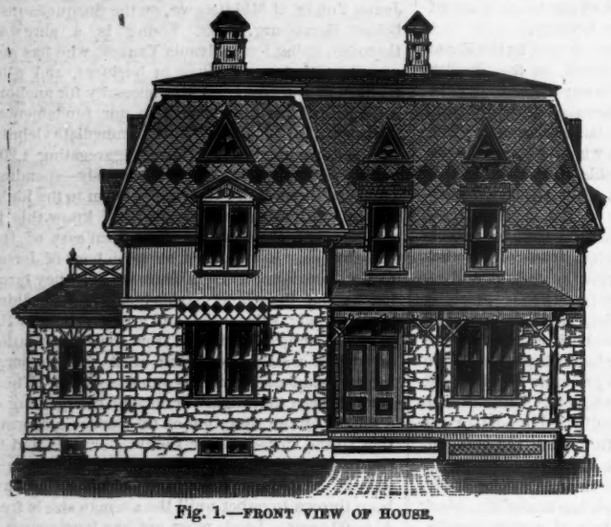


Fig. 1.—FRONT VIEW OF HOUSE.

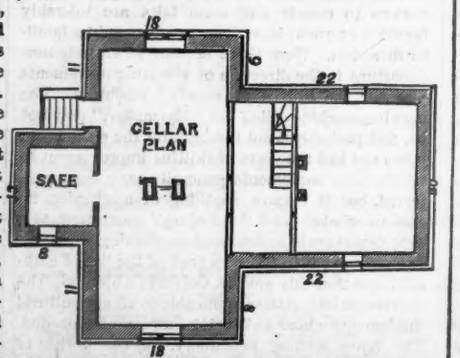



Fig. 2.—PLAN OF CELLAR.

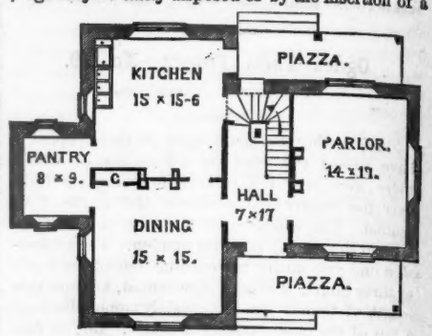



Fig. 3.—PLAN OF FIRST FLOOR.

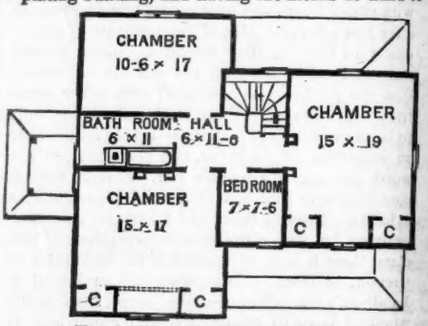


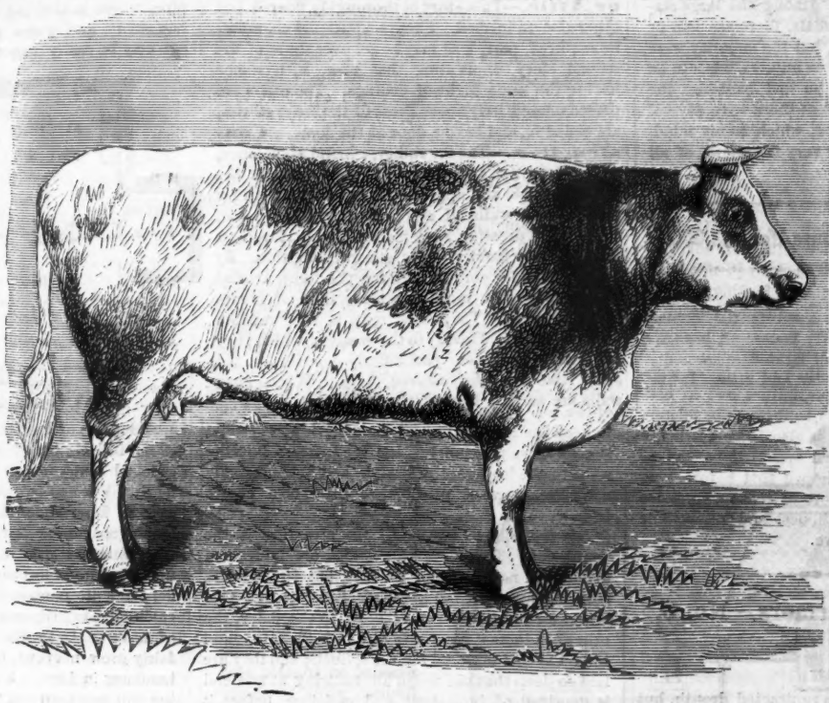

Fig. 4.—PLAN OF SECOND FLOOR.

### Estimate of the Cost:

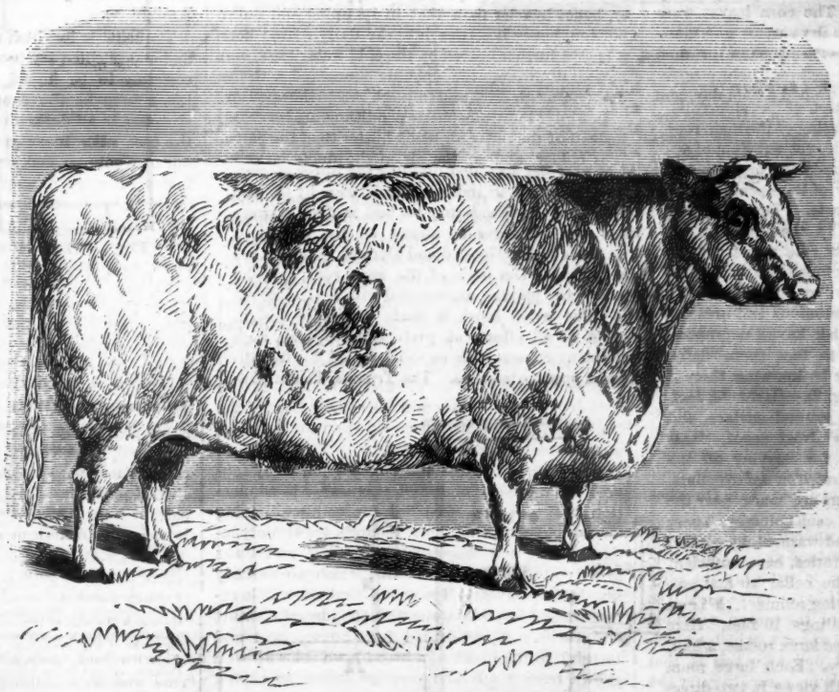
| | |
|---|---|
| 126 yards Excavation, @ 20c. per yard | $ 25.20 |
| 158 perches Stone Work, @ $2.75 ₱ perch | 434.50 |
| 91 feet Stone Sills and Steps, @ 30. per foot | 27.30 |
| 7,000 Bricks in angles, and chimneys, @ $12 ₱ 1,000, laid. | 84.00 |
| 750 yards Plastering, @ 33c. per yard | 262.50 |
| 4,262 feet Timber, @ 2c. per ft. | 85.24 |
| viz. 2 Girders, 4x8 in. x 18 ft. long. | 1 Sill, 3x8 in. x 175 ft. long. |
| 3 Girders, 4x8 in. x 10 ft. long. | 1 Plate, 4x6in. x 175 ft. l'g. |
| 16 Beams, 3x8 in. x 16ft. long. | 1 Deck, 3x7 in. x 150 ft. l'g. |
| 32 Beams, 3x8 in. x 18 ft. long. | 5 Beams, 3x8in. x 9 ft. l'g. |
| 12 Beams, 3x8 in. x 22 ft. long. | 4 Beams, 3x5 in. 20 ft. l'g. |
| 16 Beams, 3x8 in. x 24 ft. long. | |
| 340 Wall Strips, @ 13c. each | 44.20 |
| 100 Furring Strips, @ 6c. each | 6.00 |
| Cornice materials | 50.00 |
| 75 Siding Boards @ 26c. each | 19.50 |
| 357 Hemlock Boards, @ 16c. each | 57.12 |
| 18 squares of Slate, complete, @ $9 ₱ square | 162.00 |
| 14½ squares of Tin, complete, @ $8 ₱ square | 116.00 |
| 350 Flooring Plank, 8 inch, @ 25c. each | 87.50 |
| 2 Piazzas, complete, @ $80 each | 160.00 |
| 7 Cellar Windows, complete, @ $5 each | 35.00 |
| 14 plain Windows, complete, @ $8 each | 112.00 |
| 11 Hooded Windows, complete, @ $15 each | 165.00 |
| 8 Dormer Windows, complete, @ $8 each | 64.00 |
| Stairs, complete | 90.00 |
| 23 Doors, complete, @ $9 each | 207.00 |
| 3 Mantels, complete, @ $25 each | 75.00 |
| Closet finish, complete | 20.00 |
| Range and Plumbing | 175.00 |
| Nails, $25; Painting, $80; Cartage, $30 | 135.00 |
| Carpenter's labor not included above | 150.00 |
| Incidentals, Attic and elsewhere | 150.94 |
| **Total Cost,** complete | $3,000.00 |

## The Short-horn Speculation.

The business of breeding fancy Short-horns has diverged widely, and continues to still more widely diverge, from a legitimate pursuit. We use this word legitimate in its widest sense, for although a man may honestly breed, buy, sell, trade, exchange, and speculate in Short-horns, yet when he does either of these for any other ultimate purpose than seeking to supply the natural demand by farmers for the means of improving or increasing their stock, he is not putting his stock to its proper use. To use the arts of the speculator in stocks or grain, to make fictitious, or as the stock brokers call them, "wash" sales; to misrepresent their stock by widely publishing false and imaginary pictures of them, to procure extravagant prices by a system of bidding against bona-fide purchasers, and buying from one another; to create a spurious interest in certain classes of stock by thus bidding them up or buying them at unheard of prices, and immediately putting them upon the market again, so that they may go from one breeder's yards to another's with great *eclat* and much notoriety—all this is illegitimate and hurtful to the public interest. In so far as a bull or a cow may directly or indirectly serve to increase the production of milk, butter, or beef, or improve the quality of these products, it serves its proper purpose, but in so far as an animal is made simply a medium for the transfer of fabulous sums of money from one pocket to another, and an index of the money value of every other animal related to it by blood or pedigree, irrespective of actual intrinsic value, it is a fraud and a deceit. There has been much of this fraud and deception practiced of late in this so-called fancy stock business, and it is very clear that before long some persons will be caught with stock for which they have paid long prices, but which they cannot sell without loss. For the sake of the speculators, we would not care to utter a protest, but for the sake of the farmers, who are in danger of being deceived and misled into a false idea and estimate of this stock, we would remonstrate against both the system of sales and the absurd representations of animals called portraits, which are widely published by the owners in agricultural journals. The system of sales is such that in the total record of a season's business, the same animals may be, and to a great extent are, sold over and over again; one breeder purchasing here and there to make up an attractive addition to his own list of animals to be offered at his own sale. Thus in the lists of purchasers and sellers the same names recur with frequency, and any person who would suppose that the animals sold at the high prices reported are destined for use as producers of butter or beef, would be greatly mistaken. The stock animals that have so improved the quality of American beef as to make it acceptable in the English market, in comparison with the best native beef in that country of proverbially excellent meat, have not been picked up at these sales, but from the herds of breeders who are unheard of or unknown for the most part at these noted and well puffed gatherings. When we referred at the time to the noted sale of the New York Mills Short-horns, we remarked that there was not a herd of Short-horns in this country the value of which was not enhanced by the result of that sale, and we see no reason now to recall that judgment, although we doubt very much if the butter or beef product of the country has been added to in the least degree through any of those high-priced cattle there sold. But that remarkable sale gave a wonderful impulse to the popular knowledge and appreciation of Short-horn cattle, and it is since then, rather than before that time, that the demand for bulls for the improvement of our native stock has become staple and settled. This demand would continue to increase if there were not another public sale of fancy animals, or if all the high priced fancy stock of the present popular families were never heard of any more. Nevertheless, there can be no objection for wealthy breeders to make a special pursuit of keeping up a herd of the fancy strains, if they are competent to improve the stock, but there are very serious objections against the present practice of making the Short-horn the foot-ball of speculation, or the prey of any person who, simply for the sake of making money, buys stock without judgment, to couple them without knowledge, that he may dispose of the produce at a profit by virtue of its pedigree. There is danger that the best blood of the race may be injured or ruined, and in time that a lot of ill-bred, degenerate animals may be cast loose to still further degrade and impoverish the stock. We have not yet found a breeder of fancy Short-horns who would be willing to have an accurate portrait of his stock published. A photograph of one of their animals, although it may be taken by the most competent of artists, or one whose pictures of other animals have been in every way true and satisfactory, would be refused as not at all equal to the required standard. The "mold of form" desired is something entirely different from the counterpart of nature, and the standard fixed upon is one that defies all the laws of anatomy. These efforts of art are simply parodies upon nature, and can scarcely deceive the most ignorant. It can only be that the intention is to misrepresent and to induce persons to believe that the animals thus misrepresented are different from what they are. Photography gives as nearly accurate a picture of the animal as can be desired. The proof of this is given in the life-like portraits of many favorite Jersey bulls and cows made by Messrs. Schreiber & Son, of Philadelphia. That a Short-horn may be successfully photographed is shown by the portrait



SHORT-HORN COW "VIVANDIERE."—*From a Photograph.*



SHORT-HORN COW "VIVANDIERE."—*From a Painting.*

on the previous page of a noted cow, "Vivandiere," owned by Mr. Outhwaite, of England, which, with the accompanying copy of a drawing of the same cow, were originally published in the "London Agricultural Gazette." That the photograph shows the cow, is plain to any one who knows a cow, and that the picture is an exaggeration, is equally plain. But this exaggeration is passable compared with that of many portraits published in this country which are simply absurd impossibilities, to which an artist should be ashamed to attach his initials. The Agricultural Gazette has the credit of steadfastly opposing this prevalent fashion of misrepresenting animals in England, and it is fortunately seconded by many of the best and most popular and successful breeders, among whom Mr. Outhwaite, the owner of "Vivandiere," is one. Unfortunately this cow, the most successful prize taker for many years in England, died in consequence of the injury to her constitution by over-feeding to maintain her in show condition. The amount received in premiums by this cow was $5,357. The Shorthorns have qualities and excellencies sufficient to enable them to stand upon their own merits without exaggeration, both in portraiture and in estimated value. It is an injury to them to be misrepresented by the artist, as it is also to be made the object upon which financial speculations can be fastened, and it is to be hoped that before long they will be freed from both of these oppressive inflictions, and given the honest and respectable position they so well deserve.

## Among the Farmers.—No. 8.

BY ONE OF THEM.

We are in the midst of a protracted drouth, but all hope and pray we may be nearer its termination than "in the midst" would signify. Yesterday was the hottest day that I remember to have experienced in the country in this part of the world. One summer spent in Louisiana is looked back upon as an exception. We had yesterday a pretty steady *north-west* wind which was hot like the breath of a furnace. The parched landscape fairly quivered under the heat. The corn leaves were curled to mere lines, and the dry pasture and mowing land from which the grass has been cut, turned a shadow or two browner or yellower before noon. It is twenty-four days since we had a cool day, and as long since we had a soaking rain. Gardens are dried up, peas a failure, beets cease to grow, tomatoes only survive, but cucumbers and musk-melons seem to flourish as well as if we had rain, but water-melons suffer.

This farm is situated upon a gravelly hill-side, gently rolling, with plenty of springs, which indicates that the ground is underlaid more or less with water. The result is that trees do well, for after they are well established, their roots go down to a never-failing supply of moisture. I have no doubt the roots go down at least 15 feet for water through rather a course, hard-packed gravel. On all sides I hear complaints that the dry weather is causing apples to drop badly, mine drop too to some extent, but it is from worms, and not the drouth. Every one that falls has one or more larvæ of what I suppose to be the codling moth, so I presume the drouth is blamed elsewhere for what is not its fault.

On such soils as we have underdraining does not seem to make the land withstand dry weather better than before. Irrigation is probably the only solution of the problem: How to make ourselves and our crops independent of the season, provided only we have heat and light enough, which we seldom lack. The difficulty I find with this is, that the soil is so porous that it is necessary to carry the water in pipes, and distribute by a hose. We have no clay, or after a while I might hope to get the channels to hold water. I have not much experience as yet in irrigation, but this fact forces itself upon me, namely, that everything that has been judiciously watered has thriven during the dry weather beyond comparison.

### Mr. Taylor's Dairy.

In the month of June I was at Mr. W. S. Taylor's stock farm, "The Elms," near Burlington, N. J. He has fine cattle, and horses, sheep and swine, but what interested me particularly, was the dairy, which is constructed upon plans furnished, and I believe patented, by Mr. J. Wilkinson. It is connected with an ice-house, and is dependent for the excellence of its operation in part upon the ice, but to a greater degree upon air ducts laid for a long way underground at a depth sufficient to secure the same temperature throughout the year. The dairy is half underground, probably 7 feet below the general level. The ground slopes somewhat towards it, and it is entered by a descent of 5 or 6 steps. The walls are brick below ground (possibly stone), and wood above well furred off and rendered in a great manner impervious to heat. The floor of the dairy is perhaps two and a half or three feet lower than that of the ice-house, and a tank of 3 feet in width by some 20 inches deep, extends from under the center of the ice-house to past the middle of the dairy. This takes the drip of the ice, and is kept full by it and at a temperature of about 50° or less, according to the thawing of the ice. This would naturally have a tendency to keep the temperature of the dairy low, as would also its mere proximity to the ice-house. But the walls of the ice-house are thick, and as thoroughly non-conductors as possible, so little cold comes from them.

The remarkable feature of the structure is the ventilation. To secure this, pipes are laid for a distance of not less than 100 feet, but to distances securing sufficient fall in different directions. One brings air in warm weather *down* to the dairy, the other conducts it away also at a fall. Slate is found to be the best material for these ducts, and they are laid so deep that the warm air entering at one end is deprived of both heat and moisture before it reaches the dairy. Here it flows in in a steady stream, and without other sources of cold, would bring the temperature to about 60° or 62°, and maintain it there. Of course doors and windows close as tightly as possible, and should be double. When both ducts are open and in order, the conditions for a regular and rapid flow of air are established. The air in the lower part of the upper duct is colder, hence heavier than that in its upper and outer portion, hence it settles into the dairy room; here it is still further cooled by the cold water tank, and flows out through the opening connected with the descending air duct, and through this to the open air.

In winter the atmospheric conditions are reversed, instead of the outer air being hotter than the earth, it is colder, and so the air in the ducts becomes warm, hence lighter, and rises throughout the whole extent of the underground system, including the dairy in its course, keeping the air therein at or about the same temperature as the earth. The ends of the ducts are protected against the direct action of the wind, which otherwise might occasionally reverse the current. Should occasion require at times greater coldness in the air of the dairy than it receives from the earth, a duct is provided into which the air may be turned before it reaches the dairy. This circulates back and forth between the plank floor and the cement floor of the ice-house, and the air is then thrown into the room at about the temperature of 40°.

This system involves building a good dairy separate from the dwelling, not necessarily in connection with an ice-house, but preferably adjoining one, or a cold spring. Mr. Taylor's is certainly inexpensively, but thoroughly well built, and I was greatly pleased with its results, which are entirely satisfactory to him. I may add that the whole establishment impresses one with the idea of comfort and thrift. A remodeled farm-house, neat and tasteful, in the midst of a broad lawn set with well grown trees, roads and carriage drives, in capital order, new barns, cow byres, etc., somewhat scattered, it is true, but on the whole convenient, and particularly excellent stock of all kinds.

### The Centennial.

Of course my wife and I took an early opportunity to go to the "Centennial" for a week, and now we want to go again so much that we can hardly wait for cool weather and the period of the cattle shows in the autumn months. Truly here one finds himself among the works of the farmers if not as much as he might wish "Among the Farmers" themselves. What astonishing exhibitions some of the Western Agricultural States do make! Among them that of Kansas stands pre-eminent. In all these exhibitions of produce one sees few farmers, but is elbowed by crowds of city people. It is among the implements that one must go to see the producers. Farmers who come to this great show from other motives than mere curiosity, cannot keep away from the labor-saving implements. What a temple to labor and its results is the Agricultural building! It is meet that it should be the most impressive and imposing of any. Not exteriorly, for one is disappointed in the outside, but within. If "work is worship," as Mr. Longfellow holds, surely here is a fitting temple. Its broad aisles flank broader naves crossed by airy transepts, with circles, rotundas, and fountains in the intersections; the whole extending over twelve acres of ground. Nickel-plated plows with carved oak and rosewood beams don't strike farmers as practically good. There are plenty that are practically good, however, and as one wanders through a wilderness of mowers and reapers and harvesters, in the full clatter of make-believe work, he is sure to lose his way unless he gives his mind to not losing it. Who does not enjoy being lost in such a place? I am sure we did. After all, the Agricultural Department is not the place for farmers and their families who visit the exhibition to spend their time most improvingly. Any one of the other departments contains more that is new to us, and calculated to give us clearer and more correct ideas of other nations than our own. I noticed, and fairly grew nervous, or at least distressed, over a tendency in farmer folks to dwell upon and examine things which they might be supposed to be familiar with more or less, and to ignore the most wonderful and beautiful classes of objects of which it is quite certain they could know next to nothing. This tendency is a natural one, perhaps, but I must believe abnormally developed in us. We are not willing to admit even in our inner consciousness that we are ignorant. This feeling will result in the exhibition proving not nearly so instructive as it might be.

The manner in which the British display is classified and labelled is a lesson to our people, and it is certainly to be hoped that some means will be taken to make the American "exhibit" more instructive in all departments. For instance, if, as is the case with Queensland, or Victoria, localities in our own country making any notable exhibit, were indicated upon a map hung contiguous, visitors could see at once where they are, their relation to the seaports, to the great internal lines of travel and centers of population. Trenton makes a great show of pottery, remarkable for excellence and cheapness rather than beauty. Where is Trenton? There should surely be a large outline map of New Jersey showing its rivers, canals, and railroads clearly marked and having Trenton enclosed in a bright red circle, while in one corner the State itself should alone be colored in a small outline map of the United States. We are all supposed to study geography, even if we are for some years out of school, but I confess it was a satisfaction to me to see Tasmania and Queensland, and all the other British provinces clearly indicated upon maps. Besides, for the instruction of the people, we need at least in the American departments, *more reading*. We are great hands to ask questions about things which are of no earthly consequence, and yet pass through these crowded aisles interested and wondering at many things, and ask no questions about those of which we know the least. I notice where there are cards giving explanations, they are always read, and thus comparatively unimportant things are seen and studied, while others are neglected and passed by unnoticed. This is being in some measure remedied I believe; it certainly should be, for in this regard foreign exhibits are generally superior to ours, as they are also in having numerous attendants whose business it is to explain as well as to sell or take orders.

While in Philadelphia I took a run out to see

**Mr. Chas. Sharpless and His Jerseys.**

I knew that one or two of his famous old cows were dead, but was really surprised to find that the dreaded milk-fever had been so fatal with him. His herd is and always has been a small one, but exceedingly choice. They are generally of solid colors—"Dairymaid"—bought at Gilby's sale in England, and imported at a heavy cost, does not disappoint one. She is certainly one of the most beautiful Jersey cows I ever saw. "Black Bess" is a dark mulberry-brown cow of nearly perfect form, but small, and there is certainly not an inferior animal in the herd. I could but say to myself, "I wonder what Mr. Gilby would say to breeding 'Dairymaid' to a nearly black and white bull?" "Dairymaid" has been bred with extraordinary care to retain, with her solid colors, great milk and butter qualities. It is the combination of these that really gave her her value in England; now to throw all this away by breeding her to a piebald bull of such a bad color, strikes me as extraordinary. Nevertheless, Mr. Sharpless will sell his bull calves for more than other breeders can get for their heifers, and the butter record of his herd is so high that it seems like heresy to question his judgment. It was, nevertheless, a great satisfaction to see so fine a fellow saved from slaughter. I hardly know another breeder in the country who would not have condemned him as a calf on account of color alone, for in form he is excellent. I have never seen a better milk mirror upon a bull, and his pedigree all that could be desired.

**How do you Value the Milk Mirror?**

is a question I often put to farmers and breeders if they do not ask me first. The response generally is: "We like it in both bulls and cows—breed for it; it is certainly no detriment; we never saw a very good milker with very poor marks, though occasionally a poor milker will be tolerably well marked; it is a sufficient indication to be a valuable milk point, taken in connection with others"—and to that effect. "Which would you rather have, a fine milk-mirror or large milk veins?"—This question is invariably answered by practical men, giving preference to the veins. Nevertheless, they are seldom met with (the big veins and good mirror) separated. It is, however, no doubt true that a great milk-secretion requires a great flow of blood through the udder, and in its return to the heart, the greater portion of the blood passes through the milk veins below the abdomen, hence in large milkers they must be large.

**A Cow with the Garget.**

On getting back from the Centennial, I found that one of my best cows which had never showed a symptom of caked bag before, except perhaps for 24 hours at calving, had had a terribly inflamed udder, which was still swollen, caked hard, feverish, and from yielding 12 quarts, was giving barely 3 pints of milk from three teats. We fed poke-root, kneaded, rubbed, gave laxative medicine, and she improved rapidly, but one-quarter of her bag does not give milk, yet a watery fluid flows from it when the cow is milked and it is thoroughly worked. So long as this evidence of inflammatory action exists, I shall feel encouraged to hope that the quarter will not be lost. Speaking of the case to my neighbor, Mr. Farlee, he told of a curious case which occurred in his own herd. After an attack of garget, one-quarter of the bag remained swollen and grew worse. It finally suppurated at a point about midway of its hight, and again close to the teat. Between these openings he passed a narrow strap of leather, to prevent any possibility of healing from the outside. The suppuration continued until finally apparently the whole inside lining of that quarter of the udder sloughed off in pieces large enough to exhibit the structure-like ramifying tubes, and a sort of honey-combed appearance. After this the interior of the udder healed, a flow of milk began to mingle with the pus, the strap was withdrawn, and before long the openings closed in a healthy way, and that quarter has since been nearly or quite as good as ever. This is an exceedingly suggestive statement, and indicates to my mind a treatment for lost quarters which I shall try some day if I have occasion, after consulting a Veterinarian or a good physician. I would put in a rowel, and try to excite a similar sloughing of the inactive coating upon the interior.

In my last I had something to say about

**Orloff Carriage Horses.**

I have recently had the pleasure of examining a stallion of the breed imported by Mr. Robins Battell, through Mr. M. C. Weld, of New York. He is an exceedingly fine animal, and his fine style, and high, fast, showy action, are admirable. He is coal-black, with a well set head carried high, great breadth of chest, muscular forearms, flat, clean bones, small hoofs, a well rounded barrel, broad loin and rump, and is every way powerfully formed as well as graceful and beautiful in his carriage. With such a horse with a pedigree as he has, running through 10 generations of named ancestry on the sire's side, and 8 on the dam's, one may calculate with great certainty on valuable results, with almost any mares, but upon our best trotting blood, say "Star," "Messenger," "Black-hawk," or "Hambletonian" mares, it would seem as if we might almost certainly predict a combination of high speed and great style. Time will show. Mr. Battell has been prominent among Connecticut men of wealth and position for his earnest efforts to improve the horses of that State. He is a real lover of the horse, and has made this importation because he has long felt that such an experiment ought to be tried, in order that our justly famous trotting stock may be increased in size, style, and action, in beauty and usefulness, so that if a colt falls short of trotting "low down in the twenties," he may still bring a good price as a stylish and beautiful coupé or carriage horse.

## Peruvian Guano.

The deposits of guano which were discovered in the islands of the Pacific Ocean, contiguous to and belonging to Peru, over 30 years ago, are now all but exhausted. Recently, however, large deposits of guano have been discovered upon the mainland of the South American Continent, which promise to furnish supplies for many years to come. Unfortunately, these newer deposits have been found to be of inferior quality to those first discovered, and much dissatisfaction and great complaints have been the consequence. The consumption of guano has been of late much less than it would have been had the quality remained as at first, and the Peruvian Government and their agents have taken great pains to improve the character of their present product, and to regain the confidence of farmers. To this end the guano was submitted to a process called "rectification." This consisted in treating it with sulphuric acid, by which the ammonia became fixed, or non-volatile, as a sulphate of ammonia, and the phosphoric acid was rendered much more largely soluble in water than it was before, being brought into the condition of that contained in the best superphosphates. The "rectified" guano contained on the average 10 per cent of ammonia and 10 per cent of soluble phosphoric acid. This being in fertilizing properties, considerably below the old value of guano, the price was reduced in proportion, so that farmers should pay the same price as before for the ammonia and phosphoric acid the guano contained, these being really the principal constituents of value to them. This innovation, which was first introduced into England, Germany, and France, has for some time been in practice here with the best results, and the consumption of guano has recently kept pace with the increased confidence of farmers in it. But something else remained to be done to put the sale and use of guano upon a perfectly satisfactory basis. This was that the different qualities should be guaranteed, and that each different quality should be sold at a price that would be equivalent to its actual fertilizing value. The agents of the Peruvian Government in the United States, have now met this requirement by adopting the following method of preparing, assorting, analyzing, and disposing of the guano. As the crude guano on its arrival here unavoidably contains some lumps and stones, it is now crushed, screened, and all foreign matters removed. Each separate cargo is sampled and analyzed, and the different qualities assorted, and as it is bagged, the actual constituents are marked plainly upon the bags. The quality thus ascertained by actual chemical tests is guaranteed to be exactly what it is represented to be upon the bags. The prices are fixed, according to the guaranteed quality, at the following rates per pound of the different constituents, viz: for ammonia, 17½c. per lb.; for soluble phosphoric acid, 10c. per lb.; for reverted phosphoric acid, 8c. per lb.; for insoluble phosphoric acid, 2c. per lb.; and for potassa, 7½c. per lb. By "reverted" is meant phosphoric acid that has been soluble in water, and which now is not soluble, but which becomes soluble very easily when mixed with the soil; it is therefore only of very little less value than perfectly soluble phosphoric acid. The prices stamped upon the bags are the retail prices in all the ports of the Atlantic States; at interior towns the freight thither will of course be paid by the purchaser. This manner of treating and offering guano removes the objections to its use, which have heretofore existed, and places it honestly, as it ought to come, before the consumer. The variable qualities which arrive enable the farmer to procure an article exactly suited to his needs, either one rich in ammonia, or one rich in phosphoric acid. He can select what he wants, paying its exact value, while previously, he had just what happened to come to hand, and paid for a poor article precisely what his neighbor paid for the best. Lest fraud might be committed by unprincipled dealers, the twine with which the bags are sewn, is fastened at each end with a leaden seal, so that detection must follow any tampering with the bags. We have always considered Peruvian guano as the most effective of the artificial fertilizers, and have been better satisfied with it than with any other, when used for general, and not special purposes. As a complete fertilizer, naturally combined in very effective proportions, it is of the highest value, and as a help to, or a substitute for, farm-yard manure, or a stimulant to failing crops, it has uses for which no other special fertilizer can be substituted. The manner in which it is now put upon the market will doubtless increase its consumption and bring it into use with many who have previously feared to touch it.

## The Manufacture of Potato Starch.

The potato is generally considered only as an article of human food. As a food for live stock it is, considering its nutritive value, too much neglected. As the raw material for the manufacture of starch, gum, dextrine, and alcohol, it is not nearly so much used in this country as it might be, or as it is in European countries. The cheapness and ease with which it may be grown, should make it a profitable product, if its value were completely developed, by applying it to all its possible uses. To do this most completely is hardly within the farmer's province, but yet to a certain extent he may not only properly, but profitably, thus employ his energies and capital. To use these tubers as food for stock, in every possible way, would seem to be so plain a duty and so profitable a business, that it should hardly be necessary to call the attention of farmers to it. Nevertheless, it is rare to see any provision made upon a farm either for growing this crop for fodder purposes, or for using it in that way. Still rarer is it grown for the industrial processes mentioned above, but as starch is a staple product, always in demand, and salable at a remunerative price, it is certainly to the interest of farmers who live in a district where the soil and climate are favorable to the growth of the best quality of potatoes, to endeavor to utilize their crops in this manufacture. With a view to give the information necessary for a clear understanding of the machinery, processes, and cost of a starch manufactory, and in reply to many inquiries, we have prepared the accompanying illustrations, describing a Potato Starch Factory

in Vermont, in which State and in New Hampshire this business is somewhat extensively carried on.

Potatoes contain variable quantities of starch, or from 17 to 24 per cent, according to their specific gravity, or heaviness and solidity. This is a very important consideration, for the difference, amounting to nearly 50 per cent upon the least quantity contained, is sufficient to make the business profitable or otherwise. It is clear, therefore, that only the best grown crops, and those varieties with solid flesh, can be profitably used in the starch factory. Potatoes of a specific gravity of 1.09, (which means that a bulk of potatoes equal with a quantity of water that weighs 100 lbs., will weigh 109 lbs.,) have been found to contain 16 to 17 parts of starch, while those of a specific gravity of 1.123 have contained from 24 to 25 per cent. The amount of starch also varies with the season, and the character of the cultivation given to the crop, for immature tubers, or those that have been exposed to the light, contain much less starch than those fully ripe, well grown, and free from disease, the difference sometimes amounting to one-third. In this, as in all other instances, the fruits of labor are better and more profitable as the labor has been well or skillfully applied. As soon as the potato is perfectly mature, it is richest in starch, and after that moment the amount of starch becomes less, more especially if germination of the eyes or buds commences; freezing destroys the starch altogether.

The building needed for a starch factory may be as plain and cheap as is consistent with the proper shelter and accommodation of the machinery, the necessary storage of potatoes during the working season, and the care of the finished product. But little expense need be incurred in this direction, further than to make the building strong enough and water tight. As a large quantity of water is needed in the process, a good water-power, which will supply both motion and water for washing, is most convenient. As a rule the potatoes grown by the farmers near the factory, are sold at a stated price, and delivered as they may be required through the season. From what has been stated already, it is evidently to the interest of the careful farmer who grows the best potatoes, to sell his crop by weight, and greatly to the interest of the manufacturer to procure only the heaviest potatoes.

The first process is washing the potatoes. This is done in the washer seen at figure 1. The potatoes are put into the washer at *A*, passing through the funnel-shaped tube *B*, which is placed in a box or trough *C*, half of which only is shown. The potatoes are exposed to a stream of water as they pass through the washer and out of the smaller end, from which they are raked by a revolving rake *D*, into the opening *E*, falling into the grater shown in figures 2, 3, and 5. The potatoes are reduced to pulp by the grater *A*, fig. 2, a disc of perforated sheet iron, which revolves rapidly on the shaft *B*, in a strong curb, *C*. The potatoes are held against the grater by the stationary arms *D*, and the grated pulp falling into the tin box *E*, fixed around the edge of the grater *A*, is discharged at *F* into the sieve *G*, fig. 3. A sheet of water falls into this sieve from *H*, and a shower or sprinkling from *I*, the sieve being constantly shaken by the rod *J*. The consequent washing of the pulp separates the starch granules from their enclosing cells, which are broken up by the grater, and the granules being smaller than the fragments of the cells, fall through the sieve, while the refuse is discharged at *K* as waste. Potato starch differs from all other kinds of starch, both in the size of the granules and in their shape. A thin slice of potato placed beneath a good microscope, appears as shown at figure 4, in which are seen the cells packed full of starch granules of different sizes, the largest of them being 1-300th part of an inch in length. The granules are shaped much like a shell having lines drawn irregularly around a point, as seen at *a* in the figure. It is very easy to distinguish potato starch from all other kinds by the aid of a good microscope, and it is also easy to understand by this illustration how the process of grating and washing breaks and tears apart the walls of the cells, and releases and separates the starch from the cellular matter of the potato. At *L*, fig. 3, is shown a portion of the grater, with its half cover, *M*, raised. At fig. 5 is given a ground plan of the washer, grater, and sieve; the washer and trough at *A*, the gearing at *B*, the crank which moves the sieve at *C*, the grater at *D*, the sieve at *E*, the box from which the sheet of water escapes at *F*, the sprinkler at *G*, and the dotted line *H* shows the position of the cistern into which the starch falls and is kept constantly stirred by means of an agitator shown at figure 6. The mixed starch and water is pumped into large vats *I*, *I*, on the same floor as the washers, in which it is left to settle during the night. After the starch has subsided, the water is drawn off by siphons to within 2 feet of the bottom of each vat. The remainder is stirred and pumped into smaller vats, *A*, *A*, *A*, fig. 7, in which it is again stirred, and again left to settle for six hours or more, when the water is drawn off as before by siphons. The still impure starch left, called "grains," is removed to larger vats, again washed, stirred, and settled, and the purification is still again repeated until perfect, when the pure starch is removed in wheel-barrows to the kiln, fig. 8, to be dried. In the kiln there are three racks, *A*, *A*, *A*; the wet starch being placed on the highest one, is stirred, and as it dries falls through the openings on to the one below, from which it falls to the lowest one, and from that on to the bottom of the drying chamber, *B*, from which it is gathered up and packed into barrels. Sometimes the starch is dried in solid masses, in which it undergoes a sort of crystallization, and falls into those well known shapes in which it is offered for sale for laundry purposes. A ground plan of the kiln is shown at figure 9; the shelves are seen at *A*, *A*; the alley ways, 5 feet wide, at *B*, *B*; the walls are lathed and plastered, and 18 feet apart; the doors of the kiln are shown at *D*; the furnace, *C*, is simply a large box stove, enclosed for safety within brick walls, as seen at figure 10. The furnace is in the basement of the factory, and the brick casing opens into the floor above, where the drying chamber and racks are placed, as seen at figure 9, *F* being the chimney and *E* the brick-wall. There is no simpler manufacture than that of starch, the process being solely the breaking up of the cells of the potato by grating, and the separation of the starch, which is insoluble in cold water, from the cellular substance by washing, and finally the drying and packing of the starch for market. The starch of the potato is used for food as well as for the well known purposes of the laundry, and frequently appears in the shops as the West India arrowroot, which is a kind of starch made from the root of a plant known as *Maranta arundinacea*, and for which it is substituted.

Potato starch is also used as an adulterant in the manufacture of cocoa and chocolate, but however used, the peculiar shape of the granules leads to its easy detection. The waste of the starch manufacture contains all the fertilizing matter that has been derived from the soil or the manure, such as nitrogen, potash, and phosphoric acid, and is well

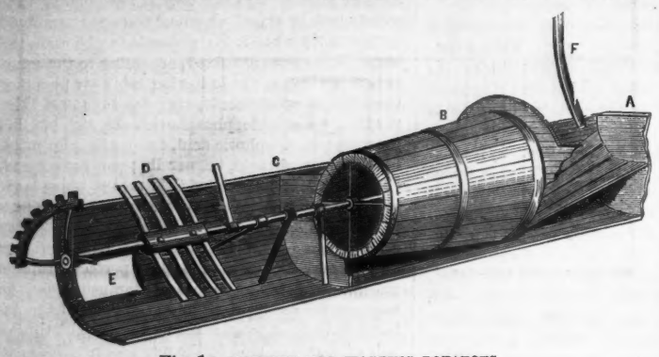



Fig. 1.—MACHINE FOR WASHING POTATOES.

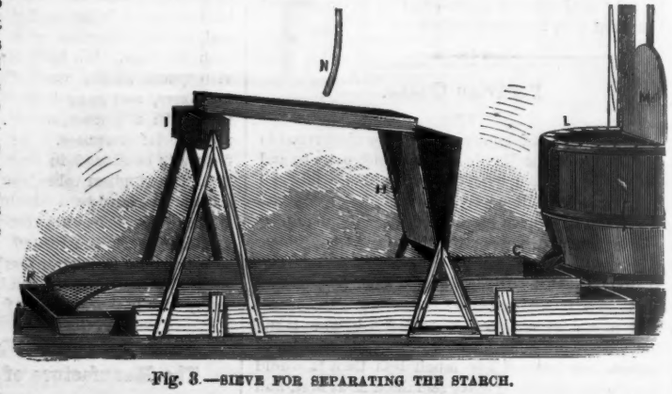



Fig. 3.—SIEVE FOR SEPARATING THE STARCH.

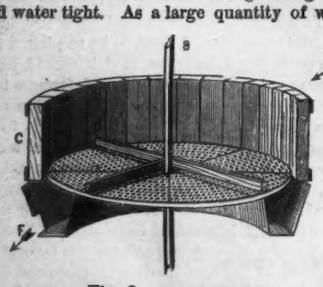



Fig. 2.—THE GRATER.

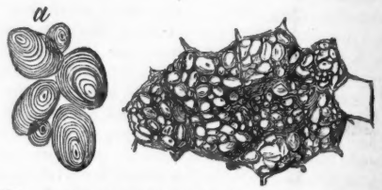



Fig. 4.—CELLS OF POTATO AND STARCH GRAINS.

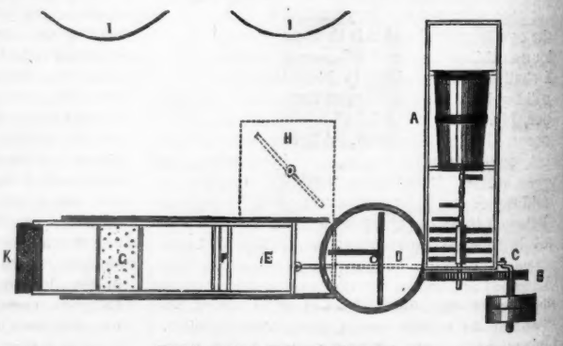



Fig. 5.—PLAN OF THE WASHER.

worth saving and returning to the soil as a fertilizer. When heated up to 400°, starch changes to a gum which is often substituted in the arts for gum Arabic, and when treated with diluted sulphuric acid, it is changed to a species of sugar known as grape sugar, which, when fermented and distilled, produces alcoholic spirits. Thus the starch of potatoes becomes itself a material for the production of other valuable substances, all of which go to add to the economic value of a very important agricultural product. A century ago the potato was known only to botanists and to a few gardeners as a curiosity, and but two varieties were grown. The above sketches were made up at the factory of Messrs. G. & F. Wooster, of Marshfield, Vt., which has a capacity of working up 1,000 bushels of potatoes weekly. One bushel of potatoes produces 6 to 8 lbs. of starch, the actual yield in the factory not being equal to that made in the laboratory. At 6 cents a pound for starch, potatoes will yield to the grower 25 cents a bushel, and a fair profit to the manufacturer.

Fig. 6.—THE STIRRER.

## Study your Markets.

It is true that many of the towns remote from market in New England are on the wane, and some of them half deserted. There is more wood and timber on them than there was fifty years ago, which is some compensation for their desertion. Farms can be bought now from ten to thirty dollars an acre, which is much less than they were worth before the buildings and fences were put up. It is hard times in these towns. It is difficult to sustain churches and schools. Town taxes are about what they were when the grand list was double what it now is, and the population a third greater. It is hard to collect taxes without the aid of the sheriff. Mechanics have moved out for want of support. The boys do not go to college, and professional men have no successors. The cause of this decadence lies in the farmers, and not in the farms. Instead of studying their own markets and raising what they could sell at a profit, they kept right on raising grain and pork, as if they had never heard of the great corn-growing States, where ten cents pays for a bushel, and twenty cents gives a handsome profit, and pork is sold at four

Fig. 8.—THE KILN.

and five dollars a hundred. Competition with the West is folly in this era of cheap transportation. Corn raised in Kansas is sold in these towns at sixty to seventy cents a bushel, paying a profit to producer, middleman, and railroad. But we are by no means shut up to the production of the few crops which the prairies can produce cheaper than we can. They cannot compete with us in the production of milk for our city and village markets. So long as the dwellers in our large towns have to pay eight to twelve cents a quart for their milk, there is a large margin for profit. Poultry and eggs pay well on these farms, or would, if the men had enterprise enough to invest in the stock. Turkeys have just what they want, plenty of range in wood and pasture. Waterfowl have running brooks and ponds, and low wet lands. Hens find their paradise about old barns and sheds, and brush pastures. Choice butter pays extra prices in all our Eastern towns, and the market is practically unlimited for the gilt-edged article. The West cannot supply our Eastern markets with fresh lamb, mutton, veal, early chickens, and roasting pigs. The range of articles needed in our home markets that would pay handsomely is wide enough to employ all the capital and labor of these waning towns, and much more. There are exceptional cases of skill and thrift in almost all these towns, and it is these men that study the markets, that prevent these towns from becoming a wilderness. One sees an unlimited demand for roadsters and carriage horses, and makes these a specialty. We know of one who has made thoroughbred Devons a leading business for twenty years. It pays. Many thrive by poultry, and market from four to eight hundred dollars worth every year. It is not a very difficult thing to find out what will pay. If a man will do this, and put his money and brains into it, he will succeed, and make the wilderness blossom again. We must take the papers and study the markets. CONN'T.

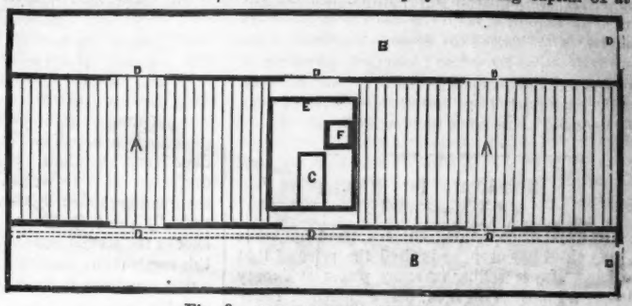


Fig. 9.—GROUND PLAN OF KILN.

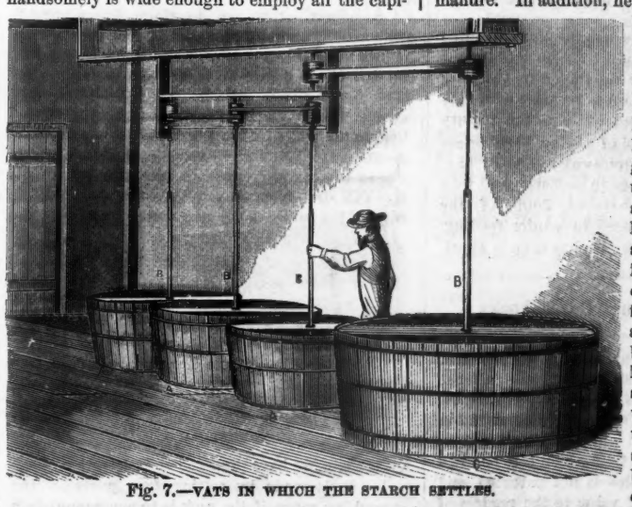


Fig. 7.—VATS IN WHICH THE STARCH SETTLES.

farmer does not own his land, except in very rare instances, and is obliged not only to pay a yearly rental of $20 to $25 per acre for a fairly good farm, but to keep the hardly worked land in good condition, is forced to employ a working capital of at least $50 an acre, to be expended in artificial fertilizers, and purchased foods with which to make manure. In addition, he is prohibited by law from killing wild animals, such as rabbits, hares, foxes, partridges, and sometimes pigeons, while his cats and dogs are killed by his landlord's gamekeeper, lest they might injure the game. This game feeds upon the farmer's crops, and he must submit to see his fields sometimes ravaged by them. The farmer is forbidden to raise such crops as he may wish, but is obliged to raise such as his landlord considers best for the land. He is forbidden to sell hay, straw, roots, or other crops which are usually fed to stock, these being consumed on the farm. He is bound to all these requirements by an exacting lease, which makes him a species of serf to his landlord, and when his lease expires he may be ousted from his farm without receiving one penny of compensation for any permanent improvements, such as drains, buildings, fences, or fertilizers, that he may have made. To crown all, the instrument by which he is bound hand and foot in this manner is made at his expense by a lawyer. In a recently reported case, the lawyer charged $140 for drawing the lease, $28 only of which fell to the landlord's

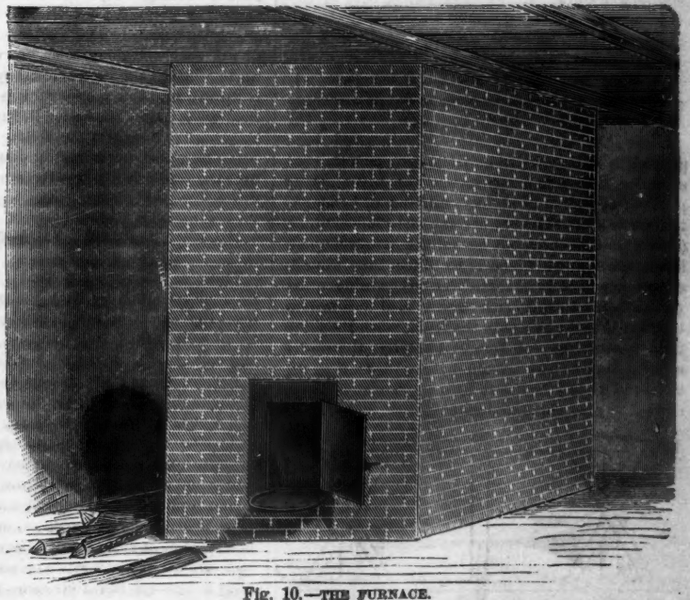


Fig. 10.—THE FURNACE.

FARMING IN ENGLAND.—The American farmer in reality occupies a very comfortable position as compared with an English farmer. An English

share to pay, by a voluntary friendly act on his part. This lease, which almost any intelligent man could draw up, the farmer or his landlord is forbidden by law to write himself under a penalty of $100, which he would be obliged to pay if he neglected or refused to employ a lawyer to do the unnecessary service. Considering the relative positions of the two farmers, an American farmer who grumbles at his free and independent position, owning his farm, and being subject to no restrictions whatever, simply does not know when he is well off.

## Substitute for Hay.

The great drouth along the sea coast has made a very short hay crop, and raised the price of that article. Hay is selling in many places at twenty dollars a ton from the field, which indicates thirty or more as the winter and spring price. Meanwhile corn is quoted at fifty to fifty-five cents in the city, and is delivered in bulk at the sea-ports for about sixty cents a bushel. This is but a little over twenty dollars a ton, and is much more profitable for feeding than hay. It is very largely used when hay is under twenty dollars a ton, and the use should be increased as the price of hay rises. The reports of the corn crop in the prairie States are highly favorable, and prices are likely to rule low. With cheap corn there is no need of paying high prices for hay. Straw, corn-fodder, swale, and salt hay, may all be used to advantage in preparing cut feed with Indian meal. We have no doubt of the economy of using more meal in winter feeding, especially in districts where the hay crop is short.

## Sled for Removing Corn-Shocks.

Mr. Thomas H. Speakman, who is the inventor and patentee of an excellent farm and garden fence of posts, wires, and pickets described in the *American Agriculturist* for March, 1873, sends an illustration and description of his sled which he uses for moving the corn-shocks from a field which is to be sown with winter grain. This sled is not patented, and whatever it may possess of value to the readers of the *American Agriculturist*, is freely given by Mr. Speakman. He writes as follows: "The machine which I use for transporting the corn from the

Fig. 1.—SIDE OF SLED.

ground, is simply a sled of the most ordinary construction, and which any farmer can make. It is made of two joists or planks; mine are of hemlock, though oak might be better; say three inches thick (two inches thick would be sufficiently strong and lighter), a foot wide, and 14 to 16 feet long, rounded at one end and connected by three strong cross pieces, being in form just such a sled as a farmer boy would make to use in the snow, with the addition of cross braces before and behind; the under edge of the runners should be rounded off to the extent of 1½ to 2 inches to turn more easily. There should be also short standards before and behind.

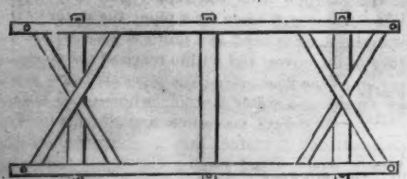


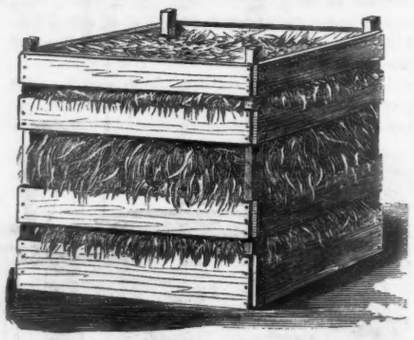
Fig. 2.—TOP OF SLED.

The runners may be 4 to 5 feet apart, according to the length of the corn. A side view of the runner with the standards is given in figure 1, and a top view of the complete sled at figure 2. I first cut off the corn and put it in shock in the usual way, making the shock smaller than usual. I let it stand thus a few days to dry, then a pair of horses are hitched to the sled, which is driven along side the shock. The shock is pushed over on to the sled, and so one shock after another until the sled is full. The load is then driven to an adjoining field, where the shocks are set up on end again, and about four of them made into one and tied at the top, or reared against a fence.

"The particular advantages of this plan are: First, that by use of the sled and method of loading and unloading the shocks, all actual lifting of the corn is avoided, and the labor and expense reduced more than half. Second, by permitting it to dry a few days, its weight is greatly reduced, and the handling much lighter. Third, the corn being partially dried, it can be put together in larger shocks the second time, and will keep better. By this method one man can clear two acres or more a day, according to the weight of the crop."

## Feed-Rack for the Yard.

"A Subscriber to the *American Agriculturist*," sends a description of the kind of feed-rack which he uses when feeding hay or corn-fodder, either in the yard or the field. To make the description perfectly plain, we have prepared an illustration of the rack. It is made by setting four posts in the ground, or more, if the rack is to accommodate a large number of cattle; but in this case we would recommend two or more separate racks, in preference to one large one, as more conducive to quietness and order amongst the cattle. To these posts there are nailed boards two high all around; then a space of one foot, and then other boards close together, up to a height the cattle cannot reach. The fodder is thrown into this rack until it is full, and the cattle draw it out as they need it, from the open space between the boards. The fodder is not wasted by being trampled upon, and the stock do not fight over the feed as when it is thrown upon the ground.



FODDER-RACK.

## Farm Villages.

There is no necessity that farmers should be isolated so much as they generally are, nor any need that the farm buildings should be in the center of each farm. It is simply a matter of figures and calculation, as to whether the saving of a few hours' labor—or a few days in the aggregate—yearly, in hauling the crops to the barn, with the barn and house in the center of the farm, and a mile away from the nearest neighbor, is of more value or more convenient than to have one's neighbors closer and one's fields farther off. There are many advantages in having three or four homesteads contiguous and forming a hamlet, or with a few tenant houses or cottages, a small village. This is especially desirable in the West, where the land was originally so divided that four farms necessarily meet at one corner, where two roads cross. Where farms are 160 acres in extent, there would then be four houses together at every mile; four sets of farm buildings; four orchards, and four plantations, which would condense the shelter provided by these, and make it much more effective than when scattered half-a-mile apart. At or near one of these corners the blacksmith's shop and other conveniences would naturally be located, and in time a farm village would be built up. There would be far better social opportunities than farmers now enjoy, and many more opportunities for combining labor and capital in joint enterprises. The scattered appearance of the houses in the early settlement of a new western country, and even of the more substantial homesteads of an older one, is one of the most conspicuous disadvantages which strike a visitor from a more populous part of the country. Neither does it improve upon acquaintance, and the necessary isolation is much felt by the new comers. It is convenient to be in the center of one's farm, but it is a question worth considering when a new house is to be built, if it would not be better to build nearer to one's next door neighbor.

## Caps for the Posts of Corn-Cribs.

A correspondent who placed inverted tin-pans upon the foundation posts of his corn-crib to prevent access by rats, now that the pans have rusted so as to be useless, asks for some substitute for them. We here describe a simple method of making this. Take a piece of galvanized sheet-iron or zinc, and cut it into the form shown at figure 2, having first measured the post of the corn-crib to find the length that will be needed. This is bent around the post in the manner shown in figure 1, and fastened with two or three small nails. When made of the material mentioned, they will outlast several pans, and cost much less, and will be equally effective in keeping out vermin.

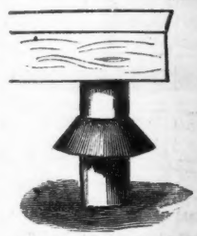


Fig. 1.—CAP ON POST.

Fig. 2.—TIN FOR CAP.

IS GRASS INTOXICATING?—It appears that the genuine good name of the Grass family for innocence and sobriety does not extend to all its members. There is a "drunk-grass," so called by the Dutch colonists, a species of *Melica*, which in some parts of South Africa "intoxicates" cattle to an alarming extent, and the evil is spreading with the increase of sheep-farming; the sheep, we believe, sorting out the other grasses, while they totally abstain from this. The account is given by Dr. John Shaw, in the Journal of the Linnæan Society, vol. 14. In Trimen's Journal of Botany for July last, Dr. Hance—a well known botanist resident in China—describes another grass, a new species of *Stipa*, from Mongolia, which intoxicates horses. A French Roman Catholic Missionary and his party, making an excursion into the Aladian Mountains, north of the Great Wall, one morning found their horses dreadfully debauched—indeed quite *hors du combat*—through partaking freely of this grass. On appealing to a family of Mongols encamped in the neighborhood, the missionary was told that the proper antidote was vinegar, followed by a broth made of a goat's head. No vinegar being at hand, the missionary administered sour milk as a substitute, while the goat's head was cooking, the broth completed the cure, and the party returned safe and sober to Peking, bringing some of the grass, which Dr. Hance christened *Stipa brebriana*. The intoxication and poisoning of cattle, horses, and sheep, in California and Nevada, is said to be caused by some species of the Pulse family, which generally is thought to be as harmless as grass.

INCREASING VALUE OF BLACK WALNUT.—Black Walnut timber has become so firmly established as a desirable material for furniture and cabinet work, that it is not probable that its present high value will be lessened, more especially as the visible supply is rapidly becoming exhausted. Ten years ago,

black walnut timber was bought "on the stump," that is standing in the woods, at two dollars a thousand feet. It is now salable at $30 to $35 a thousand, and for burls or beautifully veined or clouded timber, much more is paid. A tree, 24 inches in diameter, three feet from the ground, and with a stem 48 feet high, will make a thousand feet, and should therefore be worth 30 to $35 as it stands. As it is a rapid grower, there is unquestionably a good profit in planting this timber at the current prices.

## Portable and Temporary Fences.

Portable fences are necessarily coming more and more into use, because of their cheapness and adaptation to the more economical and improved methods of cultivation. There is no necessity for more than one fixed fence upon a farm, and that is the outside or boundary fence. We can not see

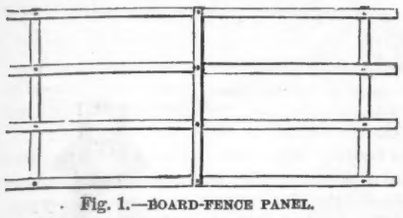


Fig. 1.—BOARD-FENCE PANEL.

that this can be permanently superseded by any method of herding stock, or by any other device; for roads must be traveled, and our neighbors can not be prevented from keeping stock in their fields, or using them as they think proper. A good outside fence is therefore absolutely necessary in any thickly populated part of the country, although a herd-law may be useful as a temporary expedient in new settlements. The most effective, cheapest, and simplest portable or temporary fence will therefore be very desirable, and from amongst the many suggestions we have received for this purpose, there may probably be some that will be adopted and used. A very good one is sent to us by a correspondent at Ganges, Mich., which is illustrated by figures 1 and 2. This fence is used in that part of the country, and thought highly of. It consists of a panel made of fence-boards or edgings, 12 feet long, with the end cross-pieces set in 6 inches, leaving the boards projecting. The posts for the fence consist of two pieces of 2 x 4 scantling crossed at the top, and connected at the bottom by a piece of inch board six inches wide, in which a notch is cut as shown. The fence is set up by resting the ends of the panels upon the posts, and overlapping them in the crotches at the top and the notches at the bottom. End braces may be used here and there in the fence, if thought

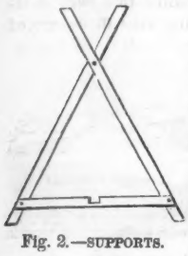


Fig. 2.—SUPPORTS.

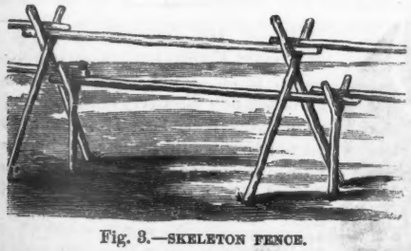


Fig. 3.—SKELETON FENCE.

advisable. Some other kind of fences are suggested by Mr. L. D. Snook, of Yates Co., N. Y. These are not uncommon in the eastern part of the country, and that shown at figure 3 we have used very satisfactorily as a temporary fence to a pasture for horses and cattle. If set up firmly, it will resist as strong a wind as an ordinary rail fence will. It will not, however, like the preceding one, answer for a sheep pasture. It is made by driving short posts into the ground, which should be notched at the top, or else crotched or forked posts should be used; upon these the lower rails

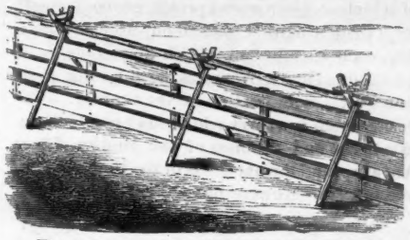


Fig. 4.—STRENGTHENING A BOARD FENCE.

are placed, and held in place by cross stakes over the joints. These stakes should be firmly driven into the ground. The second tier of rails are placed upon these, and we have found this sufficient to keep cattle or horses that are orderly and contented within the bounds of a good pasture. Where the pasture is poor, and a tempting crop of corn or clover is in the next field, no cows or horses will be likely to resist the desire to put their heads through and lift the top rails. In such a case a heavy third rail, placed upon intermediate cross stakes, should be used. Another kind of fence, shown at figure 4, consists of a temporary expedient for increasing the hight of a low fence, when it may be found necessary. This is done by placing stakes at each side of the temporary fence, and laying a rail upon them, which may be held firmly by means of a loop of fence wire, passed around the stakes. A method of adding to the

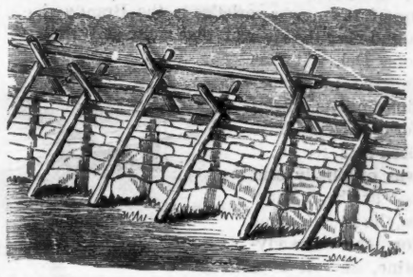


Fig. 5.—ADDING TO A STONE WALL.

hight of a low stone wall, is shown at figure 5. The engraving shows the plan so clearly, that no description seems to be necessary.

## Watering Stock.

Water is not often looked upon as food, yet it plays a part in the nourishment of an animal either directly or indirectly in much larger proportions than any other, or indeed all other aliments. An animal deprived of water will perish very much sooner than it would when deprived of solid food. As about 75 per cent of the flesh and blood of an animal is water, and as evaporation from the skin and lungs is incessant and copious, it may be readily conceived how necessary to health is an adequate supply of water. Unfortunately this fact is generally unknown, or is forgotten, or neglected—indeed there are thousands of farmers who actually believe that some of their animals, sheep for instance, require no water at all at certain seasons of the year. There are many farmers who think it unnecessary to give a drink of water to a pig, but who consider the slop it receives as ample for its needs, or that when a pig is fattening, dry food only is needed, and that water makes soft pork. There are many more who are hardly so ignorant as this, yet act precisely as though they were, and neglect to provide any water for their stock but what they can procure from pond holes or sloughs. The consequence is, the immense loss which has befallen farmers, complained of every year as something unavoidable, and for which they look for sympathy. It is very true that if anything that is necessary to health is withheld, disease and death will follow; and it being very true that an ample supply of pure water is necessary to health, and equally true that this is withheld to a very great extent, the consequence is unavoidable. Thus disease occurs in thousands of centers, which spreading around these centers by contagion or infection, becomes general, and is diffused over a large extent of country. In this way the just and unjust suffer alike, and many careful farmers may suffer from the carelessness of one neglectful neighbor. There are many districts, especially in the West, that are but poorly supplied with water. There are many farms well supplied with water, where the appliances for using it are insufficient or badly managed. Ponds of stagnant water are nurseries of disease, and do much mischief. Streams, unless of a peculiarly favorable character, are almost as dangerous and objectionable. Where the banks of a stream are muddy and marshy, and the current slow, the water is apt to carry germs of disease or the eggs of dangerous parasites. Streams that are swift of current and flow over gravelly or sandy beds, are less unsafe, but still not altogether safe, as they may become the means of conveying infection. Springs are not altogether safe, and in some cases are positively dangerous, as when their margins become fouled by trampling and the droppings of stock. Wells are the safest source of supply that can be had. The water of wells is generally filtered through a considerable depth of soil, and is free from contamination by either dead or living impurities. For sheep, especially, no water is safe but that from wells, and as pigs are almost equally subject to parasitic diseases as sheep, well water should be provided for them whenever practicable. The cost of a well, with the requisite power for elevating the water, and some safe, convenient, and economical method of presenting the water to the stock, should be considered as a necessary outlay upon every farm where stock is kept. If a well and windmill could be placed at the point where four farms join, and at the joint expense of the four owners, each farm could be supplied, without inconvenience, at one-fourth of the expense that would otherwise be necessary, and the advantage gained would be secured in many cases at less cost than that of time needed to drive stock to a pond or stream. To have water in the stock yard and in a place convenient of access, is one of the economies of the farm that can scarcely be neglected.

An automatic apparatus for supplying the water troughs and preventing either the waste or the fouling of the water, would be very desirable. To be satisfactory in use, the arrangement for watering should be complete and well adapted for the purpose required. A method of watering stock that we have seen in use, and which we consider to be a very satisfactory one, consists of a well shown at figure 1, with a pump operated by a wind-mill, or by hand, (see engravings on next page); a supply tank or reservoir (*A*), above the surface of the ground, from which a pipe leads to a covered regulating tank (*B*), in which is a valve (*H*), operated by a float (*I*), which admits water from the supply tank when it is opened by the descent of the float consequent upon the lowering of the level of the water. From this tank the water passes to the watering tank (*C*), which is covered (see *N, I, N, N*). A plank floor is laid around this tank to prevent trampling or rooting by hogs, as shown in figure 2, in which is also seen the cover that prevents the animals from using the water improperly. The advantages of this apparatus are: there is no waste of water, as the overflow from the supply tank may be carried into the well again by a pipe; the water in the watering tank is kept at a uniform level within an inch of the cover, and within reach of the stock by means of the float valve; the pipes are below reach of frost; the water is cool, wholesome, always clean, and always accessible and abundant. The apparatus is patented, and is controlled by the United States Wind Engine and Pump Company, of Batavia, Illinois. The cost of the apparatus is not necessarily beyond the means of almost every farmer, as the tank may consist of ordinary barrels, and the pipes and valve may be fitted to them by any person who can use common tools. There are few simple inventions that can be turned to more profitable use than this.

## New Raspberries—"Pride of the Hudson."

A friend who has probably had as wide experience in small fruits as any other, claims that there has been no real progress in this department of pomology during the last 20 years. He holds that among grapes there is nothing, take it all in all, that surpasses the Concord; that among strawberries the Wilson still remains the leading variety; that none of the later currants equal the Versailles, and so on through the list. If we take the market-grower's view of varieties, there is a good deal of truth in our friend's assertion, and it is undeniable, that while all of the leading varieties of the different small fruits have striking faults and deficiencies, they have also so many desirable qualities that they are at present, as they long have been, more generally planted than any others, notwithstanding the fact that since these attained the positions they now hold, hundreds of new varieties have been introduced, most, if not all, of which are in some respects better than the standard sorts. While with other small fruits, there is one accepted as the leading variety throughout most of the country, such is not the case with the Raspberry. In certain localities along the North River, the Hudson River Antwerp is the leading variety, excellent, but requiring protection; the Philadelphia, thoroughly hardy and enormously productive, is of very poor quality; the Herstine, of which so much was expected, proves too soft for a distant market, and so on through a long list, each member of which has some fault which prevents it from taking a leading position over a wide section of the country. The desideratum is a berry which shall combine the excellence and firmness of the Hudson River Antwerp, and the hardiness of the Philadelphia, and our fruit-growers have by no means given up the search for it. One of the most promising of the newer varieties is the Brandywine, found near the river of that name at Wilmington, Del. It has suffered in reputation, plants of inferior varieties have been sold for it; it was originally sent out as the Susquecо, the Indian name for the Brandywine, and it is a pity that the name was changed. The berry is of a bright scarlet color, and of remarkable firmness; the plant is said to be hardy. As far as tried, this has proved a valuable variety, as the fruit may be shipped to a distance without injury. There are several new varieties not yet in general cultivation that will soon demand the attention of fruit-growers. One of these is called "Pride of the Hudson," the fruit of which has been exhibited at this office for the past two seasons, by Mr. E. P. Roe, of Cornwall-on-the-Hudson. One cannot speak confidently of a new fruit until he has cultivated it himself, nor can its real value be ascertained until it has been tested for several years in various localities. All that we can do in such cases is to speak of the fruit itself as it is presented to us, and such account of the plant as may be obtained from trustworthy sources. The "Pride of the Hudson" is an accidental seedling found in an old garden in Newburgh, N. Y., belonging to a cousin of Mr. Roe, where it some years ago attracted attention by the vigor of the plant and the beauty of its fruit. Its canes being allowed to grow at will against a grape arbor, reached the length of 10 to 14 feet, and were uninjured in the winter of 1874–5. The leaves are remarkably corrugated or crimped, and have great substance. The fruit is of large size, of a very bright scarlet, and unusually firm. We had no other variety at hand for comparison, but we think that it will take rank in flavor with the best varieties, but rather less juicy than the softer kinds. From the branches shown, the plant appears to be remarkably prolific; the fruit, ripening about a week later than the Hudson River Antwerp, and maturing gradually. Mr. Roe, who has the stock of this plant, presents its claims in a very moderate manner, well knowing that the merits of a variety cannot be decided until it has had extended cultivation. From what we have seen of this fruit, we think he is justified in hoping that he has a valuable addition to the now quite small list of good market raspberries.

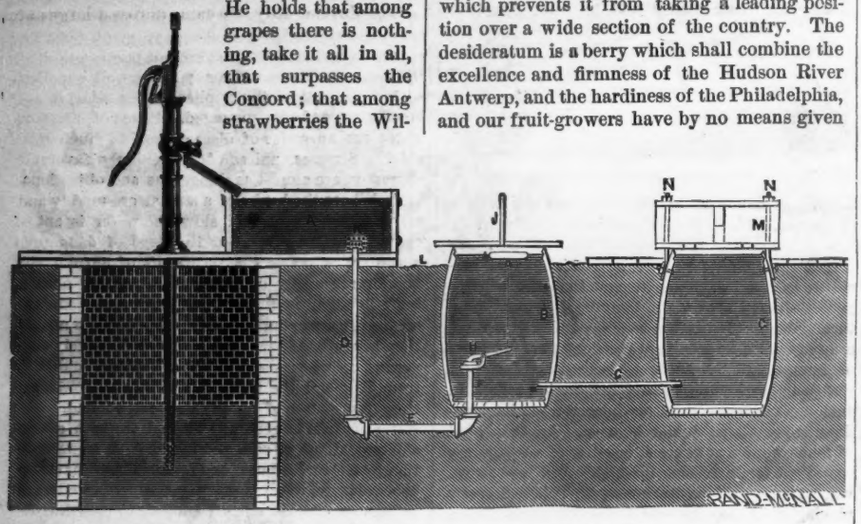



Fig. 1.—SECTION OF WATERING APPARATUS.—(*See page* 339.)

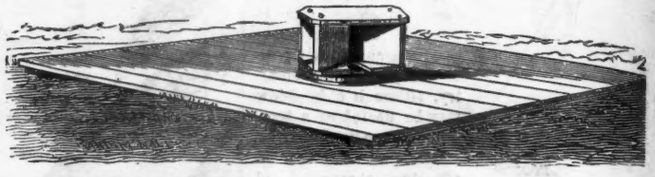


Fig. 2.—PLATFORM FOR WATERING STOCK.—(*See page* 339.)

PRIDE OF THE HUDSON RASPBERRY.

Messrs. E. & J. C. Williams, of Montclair, N. J., have a new seedling which we are watching with some interest; it has many good qualities, but will not be offered until after further trial. There is another new variety in Westchester Co., N. Y., and others elsewhere, and we hope that among them all, our critical friend above referred to, may find one which shows that some progress has been made in raspberries during the past 20 years.

PRUNING THE WEIGELA.—A writer in a recent French horticultural journal gives an account of what he regards as a new discovery in the method of pruning Weigelas. It is to treat them as one would prune a blackberry bush, *i. e.*, cut out the old wood after flowering, and leave the new shoots to make canes for next year's bloom. Having done this years ago, we are quite surprised to find it announced as a new discovery. Ineeed, the manner of growth, and the whole appearance of the bush at once suggests this as the proper treatment, if one would keep up a supply of new and vigorous wood. The work needs to be done at such an unusual time for pruning, that it is very easily overlooked.

## The Labrador Tea.

There are several plants that are rarely to be found, save in the damp cold peat swamps, and dark moist woods of our Northern States. Comparatively few have seen this aspect of vegetation, where the sphagnum or peat-moss covers the surface for acres, the upper portion of the moss alive and growing, while the lower portion is decaying, and undergoing a gradual change into muck or peat. In this wet mass a number of plants find a congenial home, one of which is the Labrador Tea, *Ledum latifolium*, a shrub which sometimes reaches five, but is commonly not more than two feet high. It belongs to the Heath Family, with the Rhododendrons, Azaleas, American Laurels, and Andromedas. Its alternate evergreen leaves are oblong, on very short leaf-stalks, entire, and of a pale, dull green; as looked at from above they present no remarkable appearance, but the under surface shows a remarkable contrast; in the first place the edge is neatly turned over all around, *revolute*, as the botanists call it, though a lady might compare it to a hem, and the whole lower side is covered with a thick brownish or rust-colored coating of down or wool, reminding one of a piece of felt; we do not think of any other native plant that presents in its leaf such strong contrast of color and texture; the new growth of the stem has a similar down, which soon disappears. The flowers appear in May and June in umbel-like clusters at the ends of the branches, and proceed from large scaly buds, which are formed the previous season. The engraving shows the end of a flowering branch of the natural size. The corolla consists of five white petals, and the stamens, usually of the same number, are sometimes six or seven; the fruit is a dry oblong pod. The plant, though not so showy as some of its relatives, is an exceedingly neat and interesting one, and is much prized in England in collections of "American Plants," as the hardy plants of this family, and some others, are there called. When found in deep peat swamps, a plant that shows only a foot or two above the moss, will be found to have a stem five or six feet long beneath the surface, throwing off, at wide intervals, a few straggling root-fibers; such plants will not live, if transplanted, but it is not difficult to find those on the margins of the swamp, that are rooted in the soil; such, if cut back, are quite likely to succeed. All shrubs taken from their native localities should be severely cut back; this is especially important with evergreens. Like the Rhododendron and related plants, this would no doubt reach greater perfection in a specially prepared peat soil, but we have on two occasions removed the plant from its native locality to a very sandy garden soil, with very satisfactory results. In European nurseries the plants are raised from seeds and by layering. A much narrower leaved species, *L. palustre*, is found far north in British America. *Ledum* is an ancient Greek name for some other plant, and attached to this by Linnæus; the name Labrador Tea refers to the use made of its leaves (which are slightly fragrant when bruised) by the people of Labrador as a substitute for tea.

LABRADOR TEA.—(*Ledum latifolium.*)

## Standard Currants and Gooseberries.

Passing out of the rear entrance of Horticultural Hall at the Centennial, with a party of experienced horticulturists, on one of the hottest days of July, we came across a large clump or bed of currants and gooseberries in which the bushes presented a strange sight, the foliage and fruit being about on the level of the eye. Our friends were at first puzzled, but having heard of the plants through Dr. Chas. Siedhof, North Hoboken, N. J., we were on the lookout for them, and were glad to see that our zealous horticultural friend had not been too enthusiastic over this novelty in small fruit culture. A novelty indeed to see currants and gooseberries, that we are usually obliged to look down at, growing where the fruit could be examined without stooping, and where a good share of mankind could look up at it. The label indicated that this interesting exhibition was by "Kuhn & Co., Hoboken, N. J., Sole Agents." It was our pleasure to meet with Mr. Albert Kuhn, whom we found a wide awake young horticulturist, enthusiastic not only in this, but whatever else relates to horticulture, and who not only had no secrets about the matter, but very freely gave us the whole story with regard to the production of these trees, for they can hardly be regarded as bushes, with permission to publish whatever we chose.

Mr. K., in 1869, went to Germany to attend the widely known Pomological Institute of Dr. Edward Lucas, at Reutlingen, where, soon after his arrival, a lot of these standards were re-

STANDARD GOOSEBERRY.—(6 ft. high.)

ceived from Austria. Knowing the interest Dr. Siedhof took in such matters, Mr. K. immediately wrote him an account of these standard plants, which brought from the Doctor an order for a number of them. We mention this to show that they are no untried thing, but have been in cultivation in Dr. S.'s garden for seven years, and though he has increased his original six to 50, those first planted are in full perfection and vigor.

The stock used to graft upon is the Missouri Currant, *Ribes aureum*, well known in cultivation as an ornamental shrub with very fragrant yellow flowers. The stocks are usually propagated by what is known as stooling, or mound-layering, and are ready to be grafted when two years old; simple straight stems are used, or the stocks by proper pinching are made to produce several branches at the top, each of which may be grafted and form a large branching head sooner than when a simple graft is inserted. The stocks are taken up in autumn and potted, or wrapped in balls of moss, and kept in a cold frame until about the holidays, when they are brought into a cool house to be grafted. Here they are forced very gradually at a temperature of about 50°, and as soon as the stocks start well, the grafting is done; the grafts are inserted in the heavier stocks by ordinary cleft-grafting, but for others what is known as the American whip-graft—without cutting a tongue—is employed, the operation being finished by wrapping with waxed paper. All unripe, pithy stocks are rejected. The grafted stocks are kept rather dark until they start, are then given full light, and when the shoots are two or three inches long, they are placed in a cooler house, where they are gradually hardened off. When spring opens they are planted out, or those in pots plunged in a somewhat shaded place, and by fall the plants are fit for sale. The plants usually bear the year of setting out, the second year of the graft, and increase in size and productiveness from year to year. The pruning consists mainly in thinning out the weaker branches and keeping the heads well open to the light and air.

The advantages claimed for this treatment of the currant and gooseberry are: 1. Great fruitfulness, the plants bearing enormous crops. 2. Great size and excellence of the fruit. 3. Freedom from the borer; it is well known that when the currant is trained to a single stem upon its own roots, the labor is often lost by the destructive work of the borer; this insect has not been known to attack the Missouri Currant. 4. The ability to raise the fine large English varieties of the gooseberry without mildew; Dr. Siedhof states that in seven years he has not had a single fruit mildew upon his standards, while plants near by, cultivated in the ordinary way, were badly affected by it. 5. Cleanliness of the fruit, and the ease with which it may be gathered. 6. The highly ornamental character of the trees, a matter of no little importance to those who pride themselves upon a neat and well kept garden. The longevity of the plants seems to be well established, they having been, as already stated, imported by Dr. Siedhof seven years ago, and Mr. Kuhn informs us that the oldest he knows of, in Germany, are 14 years old, and as healthy and as productive as ever.

Messrs. Kuhn & Co., exhibited at a recent meeting of the Centennial Fruit Committee, gooseberries which measured 5¼ by 3¾ inches in circumference, and weighing an ounce and a quarter and an ounce and a half each.

We regard this treatment of the currant and gooseberry as one of the most interesting of recent horticultural developments, and are glad to find ourselves in this respect in accord with Mr. Chas. Downing, who says of the standards: "I have no hesitation in saying that they will become a valuable appendage to the garden of the amateur for ornament as well as for general use in the family, and are without doubt a novel and interesting addition to horticulture." Those who know the proverbial caution of Mr. Downing in all such matters, will see that this is for him enthusiastic praise. The engraving on page 341, is from one of the bushes at the Centennial, and has not so large a head as the older ones. We understand that the trees will be offered for sale this fall for the first time.

## New Hardy Cherries.

BY D. B. WIER, LACON, ILL.

Many years ago, when I commenced the study of fruit culture in the North-West, I was surprised at the very meagre list of cherries that we could grow here. Only the Early Richmond (Kentish of Downing), Late Richmond (Late Kentish), English Morello, and common Black Morello, could be planted with any certainty that the trees would withstand the severity of the climate.

The Early Richmond, though nearly hardy and productive everywhere, is of too poor quality, being watery and thin of skin, it rots easily, and is too soft to ship; the three others are very poor in quality, and so late in ripening that the fruit is in a great measure destroyed by the plum curculio. There appeared to be no fruit more sought after by the people, and in the markets, than a *good* cherry. I therefore concluded if possible to give them cherries that could be depended upon in this climate in *all points*. This was setting the mark pretty high, but I am sure that I have succeeded, even beyond my most sanguine expectations. To obtain this result, I grew large quantities of seedlings from seeds of the Early Richmond, Late Richmond, English Morello, and the common Black Morello, and also a few from the hardier Duke and "Sweet" cherries. A very careful selection from these seedlings was planted for fruiting, or budded or grafted in the tops of bearing trees. I have now fruited something over 3,000 of these seedlings, and have many more yet to fruit. This, as we western folks so forcibly express it, "has been a big job." The task of carefully looking over, tasting, working, and recording an orchard of 3,000 trees in fruit is no small task in hot weather. I had resolved to give no variety any attention that was not superior in several points to the Early Richmond, it being the standard for comparison. Firstly, the tree must be as hardy as that, and secondly, it must be as hardy in *fruit bud*. All failing in these important points were discarded, for the North-West at least, at once. The grand total result, after having these new varieties in fruit from two to five years is, 36 varieties numbered and recorded for more or less propagation, and about one hundred other varieties recorded for future observation and trial. There can be no question of the complete hardiness of these varieties, they having withstood from six to ten of the most severe seasons ever known in Northern Illinois. As to the quality of the fruit, I have had that tested by as many competent persons as I could bring together, in competition with the best sweet cherries, and the record so made shows that with these seedlings we can grow cherries in the North-West nearly, if not quite, as good for *all* purposes as the *best*. I shall not at this time give descriptions of these new varieties, and will only add that I am more than satisfied with the result of my labors, though if I have life and health, I shall continue these experiments until I know as near as possible, how much the hardy sour cherries can be improved. I have obtained as yet no good results from seed of the English Morello, which is the hardiest of cherries except some of my seedlings. The Kentish family and the common Black Morello, appear to give the most seedlings of good quality.

I cannot close without remarking on what appears to me to be the most unjust and discriminating thing in our laws. What chance have I to get an adequate return for all my labor, time, skill, and capital expended in producing these new and *most valuable* fruits? Should I not have a *reasonable* proprietory right in them protected by law? Am I not more rightly entitled to a fortune from them than he who *accidentally* stumbled upon the adaptation of a little crooked piece of iron to the improvement of a sewing machine or other contrivance? The majority of improvements in mechanics are mere accidents, though, of course, with notable exceptions. While improvements in plants, fruits and animals are, as a rule, the result of the long application of time, money, and skill. I have made a few feeble attempts to have this state of affairs remedied in our horticultural societies, but was quickly frowned down and squelched by persons older and in authority, and who perhaps had never planted a seed for experiment. What a grand advancement in the world of horticulture would a proper law of this kind make. What skill and capital would be employed in this most pleasureable and valuable pursuit if each and every one knew for a certainty that if he produced something superior to what had been known before, his *money* reward would be sure.

[Our friend Wier, whose labors with the cherry we have known of for a long time, has his hobbies. One of these is, that good varieties of fruit of all kinds can be found that will endure the most severe of north-western winters, and has done much in this line—a most excellent hobby. Another is, that new fruits, flowers, and vegetables should be patentable. It does seem hard that the raiser of a new variety should receive but little benefit from his labors, and one is at first sight inclined to favor his view. But originators of fruits are few, and the people are many, and we do not think that the aggregate hardship of the fruit raisers begins to be equal to what would be the hardship of the people from annoyance, litigation, disputed ownership, and all that, should such a law as our friend asks for, be passed. We discussed this matter several years ago, and have not space in which to renew it, but as we let Mr. Wier "say his say," think it right to indicate our own position.—ED.]

## Hen Manure in the Garden.

One of the best fertilizers within easy reach of the farmer and villager, is the contents of the hennery. This often goes to waste, and the hens find their own lodging in trees, and on sheds, and other outbuildings. But on most farms there is a roost under cover, where the droppings accumulate, and are kept in a dry state. As a rule, not much care is bestowed upon it. Often it lies upon the floor without absorbents, the ammonia constantly escaping, to the injury of the fowls. Sometimes it has an annual cleaning, but oftener it lies for years only wasting. Analysis shows it to be exceedingly rich in nitrogen, worth a cent a pound, or more, in the state in which we usually find it. If all its good properties were carefully gathered, and saved by the use of absorbents, it would be worth much more than this. There are two ways of doing this, equally effectual—daily sweeping and gathering into barrels or boxes, or by frequent deposits of absorbents under the perches. The former method involves a good deal of labor, and is resorted to only by those who insist upon the utmost neatness in the hen-house. The droppings deposited in the barrels are covered daily with plaster, dry peat, or some other good absorbent. Our own method is to apply the absorbents frequently under the roosts. The hennery has a cemented floor, and is built into a bank, fronting on the south, with a large supply of windows to give light and heat. Spring water is brought into the poultry-house by a pipe, and by the turning of a faucet a constant supply of fresh water is secured. The whole floor is covered with absorbents of various kinds, in which the fowls scratch and dust themselves as freely as they please. The staple absorbent in summer is dry garden soil or road dust, gathered as the state of the weather permits. In the winter it is sifted hard-coal ashes from the furnace. In addition to this, sea weed, and the wrack from the shore are frequently thrown in, which furnishes food for the fowls, as well as helps the manure heap. As soon as the smell of ammonia is detected, more earth is added, and thus the pile of manure grows gradually through the year. It is removed as often as manure is wanted in the garden, at planting, or to assist growing crops. It needs to be used with caution, either in the dry or liquid state. We have large faith in the economy of liquid manure, applied to fruits and vegetables in the summer. It is very good in dry weather, and not much less good in wet, if the soil is well drained. The quantity of water that plants will take up in the growing season is wonderful. We keep a large tank, which is supplied with manure and water from the hennery,

and frequently applied to cucumbers, squashes, melons, tomatoes, cabbage, and to grape-vines and other small fruits. The liquid manure adds much to the vigor of the plants, and the size and quality of the vegetables and fruits. To those who have never tried it, we think the free use of liquid manure will open a new revelation in gardening. Try it on the flower borders, and on all the growing crops.

CONNECTICUT.

## The Cut-Leaved Sumach.

We know of no cut-leaved shrub or tree, that in departing from its normal condition, so effectually disguises itself as does the Cut-leaved Sumach. This is a form of the common Smooth Sumach, (*Rhus glabra*), as delicate and refined in its aspect as the other is coarse and common; indeed, we have rarely met with a person, even if very familiar with plants, who could identify this by the leaf. Fern-leaved Sumach would be a most appropriate name for it. Our object in noticing it at the present time is to call attention to its value in summer floral decorations, as in all large work of this kind, its leaves produce all the effect of fern fronds, and at the same time hold up much better than most of them do, retaining their form and freshness for several days; besides—an item of no little importance—they can be produced almost inexpensively. Indeed we are not sure but it would pay florists who do much decorative work to force the plant. As a lawn plant it should always be grown with a single stem, cutting it back each fall, to get a start as near the ground as practicable; if allowed to branch it loses much of its beauty; if grown for the sake of a supply of its leaves, it would even then be better to treat it in this way, as they are much more luxuriant when the whole vigor of the roots is thrown into a single stem. In early summer a leaf-folding caterpillar sometimes attacks the very tips of the leaves, which should be disposed of before the leaf is disfigured.

IRRIGATION IN THE GARDEN.—The experience of the past July will set the gardeners near the Atlantic coast to considering the subject of irrigation more seriously than ever before. There is rarely a season when the crops would not be benefitted by a copious watering, and in such a season as we have just passed, it is with many vegetables a question of watering or no crops at all. We have no doubt whatever that the strawberry crop would in ordinary seasons, by its increase, pay a handsome interest on the outlay for irrigating apparatus, and in unusually dry seasons, the saving of the fruit would remunerate all the expense by a single crop. By irrigating we do not refer to mere watering, as it is generally understood in gardening; but flooding the surface with water and allowing it to soak in to such extent that the soil will be thoroughly moistened. This requires an abundant store of water, but not so much as many suppose, as the garden may be so arranged as to be irrigated in detachments. The most favorable conditions are, where the water of a brook can be led along the higher part of a garden, and conducted to all parts. Unfortunately it is in only the rarest cases that this can be done, and most gardens must depend upon water obtained from other sources and stored until wanted. It is not our present purpose to discuss the details of irrigation, but simply to insist that it is practicable in nearly every garden, and that the means of effecting it will depend upon circumstances which will vary with the locality. Water rams and wind mills of various kinds are now made in great variety and at low cost, and water can be raised cheaply. Other sources not being at hand, a well will afford a supply. If the lay of the land allows of the building a cistern reservoir, this may often be best, but tanks of plank can be made to store enough to irrigate a moderate surface. It appears to us that there is no matter connected with gardening in which there is so much room for improvement as in this of irrigation, and the present, when the sad ruin wrought by the drouth is only too visible, is the time to consider "ways and means." During next April's rains no one will think of irrigating his garden.

# THE HOUSEHOLD.

☞ *For other Household Items see "Basket" pages.*

## Home Topics.

BY FAITH ROCHESTER.

### Something about Cellars.

The Scriptures might teach us, if common sense did not, to count the cost before beginning to build a house. Some tell us to make out careful estimates of the cost of building materials, and all necessary labor, and then double the amount to get a sum nearer what will be the actual expense of the new house than the first careful estimate. A little observation, if positive experience be lacking, should teach any house-builder to leave a wide margin for extra expenses and for covering the losses which result from various accidents and delays.

It would seem as though no person of good judgment would rear a house without attending first to the foundation. But this mistake is often made, especially here in the West, or in new towns where there is scarcity of house-room if not scarcity of money. The house is hastily put up over a kind of hole in the ground, which is to be dug out deeper and wider, and made into a cellar sometime. But work presses, and time flies, and the frame of the house settles unevenly, and water collects in the hole meant for a cellar. Sometimes years pass before the hole is made into a cellar, and sometimes this desirable change is never made—all of which is a great mistake. Better build small, and be thorough as you go on with the work.

A good cellar is a very important part of a country house—a dry cellar, cool and clean in summer, frost-proof and well ventilated in winter. The author of "Homes and How to Make Them," insists that the cellar shall extend under the whole house if possible, and be not *less* than 7½ feet deep. If the house is built on firm dry land, with sufficient slope away from the walls in all directions, there will be little difficulty in securing a dry cellar. And what if the outside covered drain, which is intended to carry away the water from the cellar, slopes inward instead of outward? This would not often happen, but I have lived over one cellar where an attempt at drainage met such lack of success, impressing upon my own mind the need of great care in that respect. [One method of draining a cellar was described last month, on p. 296.—ED.]

There are many desirable places for a home where a dry cellar is an exception to the general rule. But a dry cellar you must have, or suffer more or less in family health. No matter if you are poor, "Doctor's bills" cost more than sanitary measures for the preservation of health. In a paper on "Drainage for Health," in the "Report of the Mass. State Board of Health," there is a very truthful representation of the condition of many farm-house cellars at the time of spring rains and melting snows. First, the flood in the cellar, when boxes, and barrels, and wash-tubs, and hoops, and staves are all afloat, and afterwards the horrible slime on the bottom, when the pond in the cellar has slowly oozed away, leaving behind all its poison filth. The most common method of cellar drainage—the construction of a small culvert running from a corner of the cellar to some low ground near the house, with little ditches across the cellar bottom connecting with this outlet is quite inadequate for securing a really dry cellar. No one need imagine that a well made water-tight inside with cement, will answer as well as drainage. Dr. French mentions an instance where a cellar was carefully and heavily cemented to exclude water, and the pressure of the water lifted the whole body of the cement from the bottom, leaving it in broken masses, like flag stones half on edge. He says it is practicable to exclude water from a cellar by a heavy wall laid in cement, and a heavy cemented floor of brick or stone, but the process is very expensive, and leaves the adjacent soil saturated with water in wet times.

In vain have you sought a healthy climate for your home if your new dry and frost-proof cellar lacks some adequate means of ventilation. People become gradually accustomed to increasing cellar odors in their living-rooms and bed-rooms, and breathe a tainted and unwholesome atmosphere quite unconsciously. An invalid, especially one with weak lungs, coming from a pure atmosphere into one of these cellar-tainted houses, quickly perceives the impurity of atmosphere which dwellers in the house had not observed. Perhaps this is the best mission of invalids, and no one need fear that they will ever find their occupation gone, for bad air and invalids will probably "go out" together.

In building, one or more of the chimneys should be so arranged that a flue may be used for ventilating the cellar. If windows alone be depended upon, they will probably be closed and sealed by the banking outside in the coldest weather. A cellar should have both an outside and an inside entrance. It is about equally uncomfortable for a housekeeper to have all the vegetables and meat brought in through the house for winter storage, or to be obliged to run out of doors in all weathers to reach her cellar by an outside door. The cellar should be made so tight and carefully protected in every part that rats and mice can find no entrance. Drains must be protected at the outer end by copper gauze, and the windows by wire-netting in summer, so that the whole cellar may serve as a clean cool "safe" for milk and other food.

A housekeeper who has a good cellar, has reason to be thankful for one great comfort, and she can but show her gratitude by taking the best possible care of it, letting nothing be left there to decay, and having it well cleaned as often as the case demands, which is at least every spring, very thoroughly, boxes, barrels, and all.

### Dried Tomatoes.

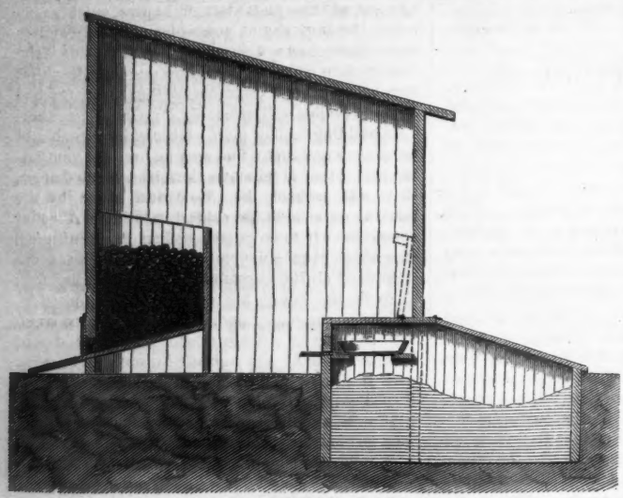
Housekeepers in the country, who have many tomatoes and few cans, can easily preserve a large quantity of this very easily raised fruit, by drying it. This method requires little outlay, and comparatively little trouble. Scald and peel the tomatoes, as for canning. Boil them slowly in a porcelain kettle or stone jar, until the original quantity is reduced one-half. Then season them in the proportion of a teaspoonful of salt, and half-a-cupful of sugar to a gallon of stewed tomatoes. Spread on plates and dry quickly, *without scorching*. As the moisture dries away and the stewed fruit takes shape, scrape it up so that both sides may dry, and let the contents of several plates, heaped up lightly, stand in bright sunshine a little while before putting away. Store in bags and keep dry.

When wanted for use, put a small quantity soaking in considerable water several hours, or over night. Stew in the same water long and slowly—three or four hours—keeping boiling water at hand to add if it grows thick, and so is in danger of burning. It should be quite thin when done, and may be thickened with bread crumbs, and seasoned with a little sugar, salt, and butter—of course tomatoes should not be made sweet. [As to sugar in tomatoes, tastes differ greatly; we know a few persons who habitually use sugar upon the cooked fruit; for ourself, the least particle of sugar is at once detected, and the dish is spoiled. We should as soon think of putting salt upon strawberries as sugar upon tomatoes. ED.]

### Knitting Work.

Practice enables a person to knit with such ease and lack of attention, that the work is almost like play, or like doing nothing. I say "person," because I do not see why boys and men should not become skilled in the art of knitting. If a man has done a good day's work and feels tired as he sits down at evening, or if he is inclined to read by the evening lamp, he had better let knitting work alone. The rest or the reading will do more good than his knitting work. Why is not this true also of women? Many a weary woman feels that it would be quite scandalous for her to sit down at home, even for an hour before bed-time, without some work in her hands; and if she is too tired to

sew, she must knit. She may possibly read a little in the newspaper in the evening, but she would be ashamed to be caught with a book in her hand except on Sunday—as if she had no work to do! A woman who is pressed with necessary work, who is really tired when evening comes, ought to let knitting work alone and buy the stockings for her family. But home-knit socks are usually the most satisfactory as regards warmth and durability, and besides, knitting is a very pleasant occupation.



COAL-SHED WITH ASH-BIN.

Babies interfere with it. They pull out the needles, and would like no better fun than to ravel the work. They oblige one to lay aside the knitting so often that it grows slowly when they are about. Besides, babies themselves are knitting work enough for a mother while babyhood lasts.

I suppose that most of the knitting is done during the long winter evenings, but if a woman who has much other work to do, accomplishes much knitting, she has to do here a little and there a little, through all parts of the year. Knitting work of coarse warm yarn, suitable for men and boys upon the farm, seems too warm for summer work, but the finer stockings and soft baby socks can be knit then. No yarn is fit to knit that smells and feels greasy. It may be good yarn, and its disagreeable qualities can be overcome by soap and water. Tie the skein in several places to prevent tangling, and wash it in a strong suds, rinsing it well in warm water.

One who has become an adept at plain knitting, can accomplish considerable reading while the fingers are busy, but only light reading can be done in this way. It is folly to try to knit or to do anything else when reading anything that deserves close attention and serious thought. One can be very much interested, emotionally, and keep the hands as busy as ever, but when the mind begins to study earnestly, the work will drop. For this reason it is not the proper thing for ladies to take their knitting work or tatting or other light work when going to hear a lecture, as is sometimes the custom, especially to afternoon meetings on week days. It suggests the idea that they do not consider the speaker's thoughts of sufficient importance to claim their whole attention, that they fear their time would be wasted if some work of the hands were not accomplished while the mind is fed. By trying to accomplish something else while also attempting to listen to a good lecture, the time is worse than wasted.

But when one feels obliged to knit or sew upon something that is so plain as to require no effort of the mind, it is a pleasure to have something not very obstruse, some good story or simple narrative or easy discourse read aloud. If the mind is in a vigorous or unwearied condition, it seems clear gain to skim a newspaper or read a good short story, or the last chapter of a serial, while a stocking for some dear one grows apace.

**To Correspondents.**

Many sweet, good, earnest women write to me, and I love to get their letters, and wish to answer them, but I wait in vain for a convenient season. Perhaps it will come to me yet, but too late to meet the necessities of some who write. Most of those who have written to me about undergarments for women and children, will find their questions already answered in previous Home Topics. I learn, however, that patterns of the Emancipation suit are no longer for sale, as it is now a patented garment. It is sold ready made in the large cities. Those who sell them ought to advertise in the *American Agriculturist*, but it is hardly proper for me to give them a free advertisement here. This suit is made with laced sides, (to accommodate persons who cannot be quite fitted by ready made garments), or without laced sides.

A mother inquires what part of the new suit is worn as night dress. All of the garments worn during the day, should be exchanged at night for fresh clothing, one garment or more, according to the weather or choice. If flannel is worn during the day, it ought to be used at night also.

In describing a little girl's costume, I quite forgot to mention a chemise, because perhaps it is so long since I have seen one. I never put them on my little girls, but used instead, the united, (or buttoned together), waist and drawers, as my elder sisters did before me. A flannel under-suit, opening behind, with a drilling or gingham waist, to which outer drawers and skirt are attached, a lined flannel dress, and a sleeved apron, all opening behind, can be taken off all together, hung so as to let the air reach the inner flannel all night, and put on to a child with "one motion" in the morning. Flannel night drawers, (or night gowns with legs), naturally take their place during the night.

## Preserving Small Quantities of Ice.

Ice-houses are now so common that those who have them, and well filled, can hardly appreciate the condition of those to whom ice is a rarity. While it seems to be a matter of necessity in modern house-keeping, there are still many families which manage to get along without it. In sickness, ice is often one of the most important remedies, and it must often be sent for from a long distance, and in such cases it is a matter of importance that none should be needlessly melted. To keep ice, it must be covered with some non-conducting material that will prevent heat from reaching it. Wrapping the lump in flannel or other woolen cloth, answers a good purpose until the covering becomes wet, when the ice melts very rapidly. The more perfect a non-conductor the material that surrounds

Fig. 1.—SECTION OF PRESERVER.

the ice, and more completely warm air is excluded, the better it will keep. Ice has been kept an astonishing length of time by placing it between two feather pillows, a plan that may do in an emergency, but neither convenient or desirable. We give here illustrations of a preserver contrived by a lady of our acquaintance, which can be readily made, and which does good service. Figure 1 shows the affair in sections; it consists of an outer

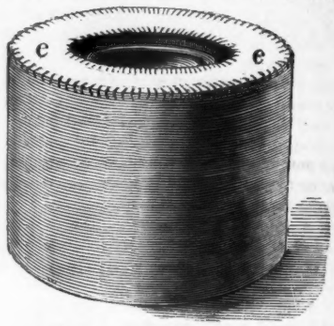



Fig. 2.—PRESERVER FOR ICE.

box of pasteboard 18 inches in diameter, and the same in hight; within this stands a cylinder of pasteboard, *b*, *b*, 10 inches in diameter; the space between the two is filled with cotton batting, *d*, *d*; the batting is also placed in the bottom of the cylinder to the depth of three inches, and a pasteboard cover, *c*, crowded tightly down upon it. The ice is placed in a stone jar, *f*, which stands in a saucer

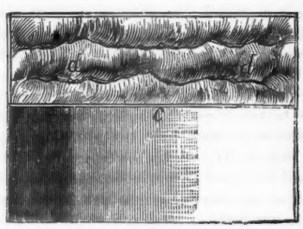


Fig. 3.—SECTION OF COVER.

to catch the drip. A circular rim of pasteboard, *c*, *c*, figure 2, which shows the exterior of the affair, is sewed to the outer box and inner cylinder. The cover, which is made on the same principle, is shown in section in figure 3; it is of pasteboard, like the box, and has three inches of its upper part filled with batting, which is held in place by a circle of pasteboard, *c*. When the cover is placed upon the box, the ice is surrounded on all sides by about three inches in thickness of cotton-batting, which is such a complete non-conductor that ice may be preserved in this manner for 24 to 36 hours. A strong darning-needle with a cork for a handle, makes a convenient pick for breaking off small pieces of ice as they are required. The same contrivance will be found useful for keeping drinks and other matters warm; these if set in the cylinder in place of the ice-jar, will retain their heat without much loss for several hours.

## A Safe Ash Bin.

In disposing of ashes, both safety and cleanliness are to be considered. When coal is used, proper economy requires that the ashes should be sifted, the unburned pieces of coal picked out and saved. An arrangement for the cleanly and safe disposal of ashes, is shown in the engraving, which represents a section of a shed with a coal bin having an outside outlet, as has been previously described in the *American Agriculturist*, (March No.), and an ash-bin at the rear, with an opening into the bin at the outside, for the occasional removal of the ashes, and the deposit of other waste that may be mixed with them. In the shed there is a lid which, by the dotted lines, is shown as lifted. Beneath the lid is the sifter, which is made to slide back and forth upon cleats, for the purpose of shaking out the ashes, and which may be lifted out by the handle in front, when the cinders and coal are to be emptied into the coal-bin in front of it. The ash-pit or bin is sunk in the ground, and should be

lined with brick, stone, or cement, so as to be fireproof. The sill of the shed crosses it on a level with the ground, and as the ashes are never permitted to reach this sill, there can be no danger that fire may be communicated to it by live coals which are sometimes thrown out amongst the ashes. The larger part or the bin is outside of the shed, and it would be well when making it to have it large enough to hold at least a wagon load. When this quantity has accumulated, it should be removed. Where earth closets are used, fine *coal* ashes are an excellent substitute for dry earth, and they may then go from the earth closet to the compost heap. The ashes make useful material for walks and roads about the farm or garden, and when employed for this purpose, it is desirable to have a large quantity at once.

## Household Notes and Queries.

VARNISHING LITHOGRAPHS.—"Sadie," Bent Co., Colorado. If a lithograph or any other paper be varnished without previous preparation, the varnish will sink into the paper, rendering it partly transparent, and giving it a very spotted and unsightly appearance. Before varnishing, the pores of the paper must be filled with some material which will not allow the varnish to penetrate, and this operation is called "sizing," and the material used a "size." For engravings, some form of glue makes the best size; the whitest glue or gelatine, will answer quite as well as the more expensive isinglass sometimes recommended. An ounce to an ounce-and-a-half of gelatine or white glue to a pint of water, will make a size sufficiently strong. Soak the glue in cold water until soft, then heat and add the rest of the water. Try one coat on a piece of paper similar to that of the engraving; when thoroughly dry, apply the varnish; if that sinks in, it shows another coat of size to be needed.

RYE BREAD.—Several responses have been received to our request for instructions to make Rye Bread. The following comes from "W. A. R.," Allegheny, Pa., who says: "The *American Agriculturist* has been useful to me, and I would like to make some return if it is in my power." "For Rye Bread I set the sponge with wheat flour, the same as for wheat bread. After the sponge has raised well, I mix the dough with rye flour, working it well; after the dough has raised well, I mold it into loaves, and raise again. Bake on an oven bottom, and when almost done, take the loaves out of the oven and wash them on top with a little brown sugar and water, and then set them back to finish baking. Those who like caraway seeds in rye bread, can put them in while mixing the dough." ....Mrs. "M. H. K.," says: "As our family are very fond of rye bread, we have used it almost entirely this winter, and think our recipe a good one. It is: Take two quarts warm water, and melt in this one table-spoonful of lard, then add the same quantity of sugar and salt, stir in rye flour, making a thin batter; then add a cup of yeast, and let it stand over night to raise. In the morning stir in more flour, making a thick batter, and when it again becomes light, put into pans and bake, either with or without raising a third time."

STAINING OR PAINTING A FLOOR.—"Mrs. E. B. N.," whose request, being appended to some recipes, was overlooked until now, wishes to know how to stain a common pine floor to look like black walnut. The staining in imitation of walnut is done with burnt umber mixed with water. It is prepared by color makers for the use of those who grain in imitation of walnut, and this would, perhaps, be too expensive to use upon a floor, and the ordinary dry burnt umber would probably answer. The color mixed to a thin mud, should be applied to the floor, and well rubbed in with a woolen cloth. Some boards will take up more than others, and thus make a pleasing variety. The staining depends upon the sinking of the fine particles of the paint into the pores of the wood, and none should remain upon the surface, as in painting, but as much as possible should be rubbed into the pores of the wood. When the water dries away, the color will look very dull and unpromising, but will be brought out by varnishing, or waxing the floor. In

PAINTING FLOORS, we have had no experience. Those we have seen have been covered with a paint of yellow ochre. Any painter will tell you which will be the best paint for the purpose. If any of our readers can give any advice as to a useful method of treating kitchen floors, either by staining or by painting, we shall be glad to hear from them.

# BOYS & GIRLS' COLUMNS.

## The Childrens' Play-House.

We many years ago visited a place celebrated all over the country for its great beauty. A grand house was surrounded by equally grand grounds; there were broad and carpet-like lawns, smoothly rolled walks; there were tall old trees and rare flowers; there were statues and vases brought from Europe; there were covered seats, a fountain, a water-fall, and a bridge, and it seemed as if everything that money could buy, had been brought together to make the place beautiful. We spent many hours in these charming grounds, and now, after these many years, when we think of our visit there, what do you suppose first comes to mind as the prettiest thing on the whole place?—Not statue, vase, or fountain, but a

THE CHILDREN'S PLAY-HOUSE.

little hut built of poles and bark, hidden among the tall shrubs in a quiet nook—a play-house for the children! Here was good sense. The owner was wealthy enough to have had it made of marble, or it might have been of nice wood work, with carving and painting, but he had not forgotten that he was once a child, and that children when they have a good time, do not wish to be in fear of scratching the paint or disfiguring the marble, so a neat bark house was built for them, and right cosy it looked. The sketch by our artist of a rude play-house reminded us of that, and reminded us to say to the larger boys that they can not better please their younger brothers and sisters, than by putting them up a play-house. Children like some place which they can call theirs, where they can have their playthings, and where they can invite their young friends. It need not be very nice, but it should be a shelter from the sun, and all the better if the roof can be tight enough to keep out the rain, so that it can be used in stormy as well as in bright days. A tent will answer pretty well, but it is not so good as a house built of boards. Those who live where trees are plenty, can easily make a neat rustic house. The roof is the principal thing, for the sides need to be pretty much all doors and windows, to give plenty of air. Pine leaves make a capital carpet, or you can cut rushes to lay down on the floor. In choosing a place, see that it is one from which the water will run away when it rains, else it will be very unpleasant. A very pretty house may be made by putting up a roof—only let it be a good broad one—supported by posts, and then plant vines all around to serve for the sides. Morning glories, beans—especially scarlet runners—Cypress vine, and others, can be trained upon strings to make a nice shady arbor. Then boxes, kegs, and other articles can soon be turned into furniture that you need not be afraid of scratching. Youngsters do not need to be told what to do with such a house. The school keeping, the tea-parties, the going a visiting, will all come of themselves. Then it can be the childrens' museum, where all the curious and pretty things that you find can be collected. Here the curious stones that are found about the place, the shells from the brook, the pine cones, the wax-work berries, will all be brought, and here will come the gay bunches of autumn leaves. Don't forget to make friends of the birds and the squirrels, as they may be taught to come about the house and be very tame. It is not the most expensive things that bring the most enjoyment, and a boy can make his young brothers and sisters happier by providing them with a simple play-house, than in any other way we can think of. It is perhaps rather late in the season, but a house built in these fine autumn days will be all ready for another year.

## The Doctor's Correspondence.

I can save a number of young people some trouble, or what is the same thing, tell them how they can save it themselves. Do not ask me to "answer in the next number."—Here is a letter that asks for a reply in the August number, and when it came the August number was not only printed, but I have no doubt that a copy of it was in the mail-bag and on its way to that boy's father. I have not received a question yet from a boy or girl so important that a delay in the answer should affect their health or happiness. Don't be impatient, young-

sters, you may be sure of attention just as soon as it is convenient.

CRYSTALS IN THE JELLY.

Master L. A. W. A., of Seneca Co., N. Y., sends a little box containing some very pretty crystals from peach jelly, and says: He wishes to know about the crystalization, "and to what acids it is due."—I cannot see how my young friend got the notion that "acids" had anything to do with it, as the crystals are only pure sugar, colored a little with the coloring matter of the peach; and as sugar dissolved in pure water will in time form such crystals, it is not worth while to be looking for any unusual cause. Cold water dissolves about twice its weight of sugar, while hot water dissolves so large a quantity that it is not exactly known how much. When hot and strong solutions of sugar cool they deposit the sugar in crystals; if the solution is very strong the crystals will form rapidly, will be very small, and in a mass, as we see in loaf sugar. If the solution is weaker, the crystals will form more slowly, be larger, distinct in shape, and very clear. Rock candy is made in this way; a syrup or solution of sugar of the proper strength is set in a warm place for some weeks, and the sugar will slowly crystalize upon threads hung in it for the purpose; the crystals thus slowly formed look much unlike loaf sugar, but they are the same except in shape. Snow, which is quickly formed, and very small ice crystals is dead white like loaf sugar; ice, which forms slowly, is transparent, like rock candy. If you crush a crystal of rock candy or a bit of ice, you will in both have a dead white powder. So you see that the same thing can put on very different appearances. It is difficult to say what caused the crystals to form in my young friend's jelly. Sometimes boy's mothers are bothered by very small crystals coming through it, like candied honey. It may have been kept in too cold or too warm a place, or there may have been too much sugar. All I can say about it is, that crystals are the natural form of sugar, and it will, sooner or later, get back into crystals unless there be so much liquid as to prevent it. Their regularity and size shows that these crystals have been a long while in forming. I am glad my young friend sent them, for the reason that they are six-sided crystals. Sugar usually is in four-sided crystals, and though I knew that they were sometimes six-sided, and had seen figures of them, I do not think I ever before saw the crystals themselves.... Some of the boys ask

RATHER TOUGH QUESTIONS.

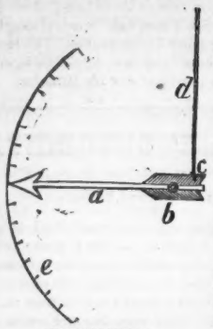
Here is one who knows from experience that willows will grow readily from cuttings, while apples will not, and he wishes to know why it is. This is a matter which my young friend knows as much about as any one: he has tried the two plants, and finds that it is so, and the most learned cannot get much beyond that. As a general thing trees with soft wood take root more readily than those with hard, but no one can know with certainty whether a plant will root readily from cuttings or not unless it is tried. Some apples will grow from cuttings almost as readily as a willow, but they are not of kinds valued for their fruit. There are some shrubs that is almost impossible to raise from cuttings, while their close relatives grow readily....Here is a letter from H. L. P., who says that it is his first letter, "so please do not throw it into the waste basket."—I am not in the habit of treating my young friends' letters in that manner; all who write as sensible letters as he does are quite welcome, and if they do not get a direct answer, it is for some good reason. He wishes to know if white is not one of the

SEVEN PRIMARY COLORS.

White is not regarded as a color at all. I have been intending to make a "Talk" some day about light and colors; it is a difficult subject, but there are some things about it very interesting, and which young people can understand. At present I will only say that light, as it comes from the sun, is white light, and without color, but that it may be separated into seven different colors, viz: red, orange, yellow, green, blue, indigo, and violet; these are called the primary colors, and all other colors, tints, and shades, are mixtures of these. There is a way, which I hope to describe some time, of breaking up white light into these colors, and then bringing the colors together again to make white. Some regard the primary colors as only three: red, yellow, and blue, and orange as a mixture of red and yellow, green as yellow and blue, etc. Black is the absence of all color, and all light. I can now only answer the question about primary colors, but at another time hope to say more about it, and tell you of some curious experiments that you can easily try with colors....Martin L. H. wishes to know how those little affairs like a house with two doors, from one of which a man comes when it is stormy, and from the other of which a woman appears when it is fair are

AFFECTED BY THE WEATHER.

You have noticed that a cord is slack in dry, and "taught," as the sailors say, in damp weather. A clothes line is a very common example of this. These toys are so arranged that the shrinking of a bit of cord moves the arm to which the figures of the man and woman are fastened. You can easily make something of the kind. A simple way is to make a pointer like a clock hand, or an arrow.



HYGROMETER.

You can cut one from a piece of shingle, *a*, and put a strong pin, *b*, through near one end for a pivot; at *c* tie a piece of twine, *d*, that has been soaked in salt and water and dried; this may be 6 or 8 feet long, and fastened to a tack on the wall above, which it is not necessary to show in the diagram; you can then, to better observe the changes, mark a scale, *e*, upon a piece of paper, and put it behind the point. One arm of the arrow being so much longer than the other, the motion will be very much magnified. This simply shows that the air is moist, and as it frequently becomes so before a storm, it may sometimes show that a storm is coming, but it is not to be depended upon. Such instruments are called *Hygrometers*, from the Greek words for moisture and measure. Barometers have reference to the weight of the air, and act upon an entirely different principle. The human hair is very sensitive to moisture, and a very delicate hygrometer may be made with a long hair that has been washed in a solution of soda to remove the grease.

## A Dog Dying of Grief.

The "*Forest and Stream*" some months ago gave the following story of a dog's love for its master:—About two weeks ago a man named Parcels, a blacksmith, residing near Dobbs' Ferry, went hunting "coons" at midnight. His companions consisted of a neighbor, residing close by, and a faithful dog. While searching for game at Sneeden's Landing, on the Hudson River, Parcels approached the brink of the Palisades, and by some mishap lost his balance and fell down a distance of 30 feet. His friend having missed him, sought him, and by diligent search found him lying where he had fallen, and his faithful dog by his side moaning piteously. On attempting to approach the body the usually friendly animal strongly protested by growls and threatening attitudes. The man, seeing that his companion was seriously injured, went for aid, and in a short time returned with a surgeon and some friends; but the dog, which lay with its head across the body, refused to let them touch the treasure it so faithfully guarded. They were at length compelled to drive him away from his post by blows. An examination proved that the man was dead, so the remains were placed in a boat and a piece of canvas thrown over them. The dog jumped into the boat also, and placed his head across his master's face, and remained there until the landing. The body was then placed in a wagon and conveyed home; but no sooner had it been covered than the loving friend again sought his old post. After the burial the dog became more depressed, refused its food, and wandered listlessly about, moaning in a low, nervous tone, and heedless of everything. He would pay no attention to any of the inmates of the house, and all their efforts could not cause him to manifest any signs of recognition. After dragging along for a week, caring neither for food or water, the faithful dog died—a martyr to love for his master.

## Aunt Sue's Puzzle-Box.

CROSS WORD.

My first is in bracelet but not in ring,
My next is in chant but not in sing,
My third is in year but not in day,
My fourth is in corn but not in hay,
My fifth is in ale but not in beer,
My sixth is in there but not in here,
My seventh is in pink but not in red,
My eighth is in Tom but not in Ned,
My ninth is in rain but not in shower,
And my whole is the name of a beautiful flower.
JIMMY JOHN.

NUMERICAL ENIGMA.

I am composed of 21 letters:
My 10, 11, 1, 6, 3, is a very pretty name for a girl.
My 4, 12, 13, 3, is a grain.
My 20, 15, 17, 10, is a kind of bullet.
My 9, 5, 2, is to point.
My 16, 14, 18, 8, is to swerve.
My 20, 21, 4, 7, 19, 16, is distress.
My whole is always a welcome visitor. P. A. W.

ANAGRAMS.

1. Onion camp.
2. Mrs. Moon.
3. Head car.
4. Anna, toil.
5. Bar so salt.
6. Hope's pride. E. W.

DOUBLE ACROSTIC.

The initials and finals give the names of Spartan lawgivers.—1. A French novelist. 2. A lively musical variation. 3. A man mentioned in the Bible. 4. A bay on the Atlantic coast. 5. A river of New England.
LITTLE ONE.

CHARADE.

My first word names an English town,
In olden times, of great renown;
My second hath a changeful voice,
It bids us weep, anon rejoice;
My whole in Flora's fair demesne
In summer time may oft be seen. THYRZA.

CONCEALED STATES, COUNTRIES, ETC.

1. I will tell you our plan. Eva, Dan and Mary go to Philadelphia, and I go home. 2. John, will you escort Ida home? She is quite ready. 3. We are going to church in a chaise. 4. Mother, can Ada take this pear to sister? 5. Oh! what a beautiful sample of ore! Go, Ned, and show it to your father. 6. Nellie, is Pa in the garden? 7. No, he was just starting for his office as I arrived.
L. J. S.

CONCEALED SQUARE WORD.

My dear William, art is a real blessing if properly directed; and here am I waiting for a chance to learn something. Just now I think myself well off if I get an ounce of meat at a meal.
CLIO.

PI.

How ni a snhoe fo slags dulwo welld
Thiw sonrcui eesy ta verey nape?
Ot grin imh ni dan ton anagi,
How stawn het cublip rfcer's lelb?

GIBBERISH.

Do I ngn O thin gis Do I ngi LL.

METAGRAM.

Find a word of five letters out of which you can get 15 nouns (inclusive).

HOUR-GLASS PUZZLE.

The center letters name a city in Florida.—1. Eloquence. 2. To underrate. 3. A county in Kansas. 4. A county in Texas. 5. To forbid. 6. One seventh of one half. 7. To prate. 8. A county in New York. 9. The capital of one of the United States. 10. One of the United States. 11. A river in the United States.
BILLY BUTTON.

DECAPITATIONS.

1. Behead something dismal and leave a mechanical contrivance. 2. Behead what you don't like to have and leave what you should like to be. 3. Behead one who represents another and leave one who represents another. 4. Behead something often comforting, though often very dangerous, and leave something that it is unpleasant to be. 5. Behead an error and leave where it may often be found.

DROP LETTER PUZZLE.

H w o h h l t l b s b e
E p o e a h h n n h u
A d a h r o e a l h d y
F o e c y p n n f o e

ANSWERS TO PUZZLES IN THE JULY NUMBER.

CHARADE.—Figure (fig-Ure)

DOUBLE ACROSTIC.
Chameleon. Alligator.
C— alcolari —A
H— umera —L
A— w —L
M— ag —I
E— g —G
I— onisian —A
E— mme —T
O— ntari —O
N—ecromance—R

SQUARE WORD.
Y O U R S
O R L O P
U L E M A
R O M A N
S P A N S

DECAPITATIONS.—1. Estate, State. 2. Falter, alter. 3. Flight, light. 4. Gold, old. 5. Gown, own. 6. Least, east.

CROSS WORD.—Mark Twain.

ANAGRAMS. — 1. Thunderbolt. 2. Encroachments. 3. Workmanship. 4. Europeans. 5. Bricklayers. 6. Intelligence. 7. Warehouses. 8. Countermanded. 9. Rehearsal. 10. Interchanges.

TRANSPOSITIONS. — 1. Seldom, models. 2. Stop, post. 3. Satin, stain. 4. But, tub. 4. Nuts, stun.

DIAMOND PUZZLE.
Rio Grande.

R
K I T
M O O N S
S T A G G E R
R I O G R A N D E
T A R A N T O
B O N D S
O D E
E

PI.—In Wesminster's royal halls,
Robed in their pontificals,
England's ancient prelates stood
For the people's right and good.

Thanks, for letters, puzzles, etc., to Susanna H. W., Effie W., Harry, G. W. B., Soulon, Charlie G. B., G. G. G., Mary A. E., Gertie, H. S., F. M. G., and G. Barnes.

*Send communications intended for Aunt Sue, to Box* 111, *P. O., Brooklyn, N. Y.*, and *not* to 245 Broadway.

## What Katy Did.

BY LILA V. NORTH.

It was past three o'clock when Katy went through the east orchard. The shadows of the trees lay on the short grass, with patches of sunlight between, and at every step Katy took, the grasshoppers, big and little, jumped nimbly out of the way. Katy was a very pretty little girl, her brown eyes and brown curls matched her brown gingham dress, and her lips and cheeks were like the scarlet of the cardinal-flower down in the swamp. The orchard was full of apples—red, yellow, and green—but Katy did not stop, not even under her favorite Seek-no-further tree; she went right on, holding something in her little apron, past the orchard, and the rye field on the other side, pausing only to break off a tall golden-rod,

which stood looking over the wall, until she reached the woods. She went in under the cool shade of the trees by a little path, which went down into hollows and up on rocks, and around trees and through ferns, until it reached a brook. Katy sat down on a stone by the bank, and looked into the water. Away back in the woods she could hear it tumbling, and gurgling, and laughing at the stones which tried to keep it from going on its way, but here it was very still. Close by Katy's seat was a little pool, with a sandy bottom, and below it a shallow fall, where the water made a low sound—like some one singing to a baby. Overhead the trees waved their long branches, and the wind in the leaves made soft music, as though it were answering the brook.

Any one would think that such beautiful sights and sounds could not but make a child very good and very happy, but Katy, pretty Katy, was very far from being good just now. She was watching the curious long-legged water-beetles skimming and jerking on the surface of the pool, and waiting until one came quite near, she caught it suddenly and put it in her apron. And now let us see what Katy has been hiding there this long time. First, there was a red and black butterfly, which has torn the edges of its pretty wings in trying to get out of its prison; then there is a great yellow moth and a tiny lady-bird, a big brown grasshopper, and the water-beetle.

Katy took out the butterfly, and as she was doing so, the lady-bird flew away home, but the butterfly was not so quick, he only crawled around and around Katy's hand with his soft legs, as though asking her to help him. But all that Katy did was to pull off two of his pretty wings, to see if he could fly with the other two. Now, if a butterfly could get along with two wings, God would not have given it four, so Katy had quite ruined the poor creature, and after trying in vain to make it fly, she grew tired of it and threw it down in the grass—not having the kindness even to kill it, and so end its misery.

Then Katy took up the moth and laid it down flat on the top of the water. Poor moth! it's wings grew wet and heavy, so that it could not raise them, and though it did not sink, it was forced to float with the stream. Katy laughed to see it carried over the fall, and away down the brook, until she could see it no more. The water-beetle was the next victim; Katy wanted to see if he could live under water, so she pulled a thread out of her apron, and fastened one of his legs to the golden-rod. Then she held him under the water a long while, and when at last she drew him out, his long legs were all drawn up—he did not move, the poor insect, though it lives in the water, must breathe air, and was now drowned and dead.

Now the grasshopper had been shut up in the dark a long time, and f eling rather lonely, he resolved to fiddle. So fiddle he did, and a very merry tune it was, though he could not help wishing for his brothers and cousins to dance to his music. Katy heard him, and peeped into her apron to see. There he was, using one of his wings for a fiddle and the other for a bow.

"How funny!" said Katy, as she took out the grasshopper, and holding it by one of its long legs, to prevent its jumping off, waited for it to fiddle again. But the grasshopper was not used to being watched so closely while he was playing, even if he could have done anything with some one holding him like that. So, after waiting a long while, and hearing nothing, Katy pulled off both the fiddle and the bow, and threw the fiddler away. Then she arose, went back by the little path to the edge of the wood, across the rye field, through the orchard, with the shadows about her feet, and the sunlight on her hair, and so home.

There was a pretty green insect setting in a chestnut tree which grew by the brook. The green insect saw all which Katy had done. While she was there, it was afraid to speak, but after she was gone, in the evening, when all was still, he told it all to his cousin, who lived in a maple tree on the border of the wood. This second green insect had seen Katy coming out of the woods, tripping along, with the sunshine on her brown curls, and the golden-rod in her hand. He could not believe such a lovely little girl could be so cruel.

"It can't be," he said, "I don't believe it."

"But I tell you it's so," said the first green insect, "I saw it with my own eyes!"

"It must have been some one else," said his cousin, "Katy couldn't."

"But Katy *did!*" chirped the first, "Katy didn't!" cried the second.

"Katy did!" said one; "Katy didn't," said the other, and so they kept it up all night, and not only that night, but all the nights until frost came. Soon all the green insects in the woods and fields around held one of two opinions, either that Katy did, or that she didn't. And so it has been from that time.

Listen almost any night after the first of August, and you will hear them, hundreds of these green insects, repeating Katy's name, and wherever there is found one who thinks Katy did, there is found another who is sure she didn't. But you and I know that Katy *did*.

## Aunt Sue's Chats.

JAMES H. FOSTER says: "Can you tell me why the 1st of April is called April fool's day?"—That is a very "vexed question," James; antiquarians have searched in vain for the origin; one writer thinks that we get it from the French, whose *poisson d'Avril* (April fish) is said to refer to the mackerel, a silly fish, which is caught with so simple a bait as a piece of red flannel. The Hindoos have their "April fool's" day, which they call their *Huli* feast. The Romans had their *Festum Fatuorum*, or Fool's Holiday, which classic writers claim to be identical in date with our All Fool's Day; and it is said that *they* got it from the East. By some it has been traced to the passage in our Saviour's life, when he was sent back and forth from Pilate to Herod, and from Herod to Pilate. But the most remote, approximately definite origin, of which I find any account, is one which ascribes it to the mistake of Noah, in sending the dove out of the ark before the waters had abated, and that, as the legend has it, on the first day of the month, which among the Hebrews answers to our April. If any of our readers can give us a more probable origin, we should be glad to hear from them on the subject. Your other questions should have been propounded to 245 Broadway, as they are on business.

A. N. J. has "heard of one kind of patchwork, called 'Philadelphia pavement,'" and asks if I have ever heard of it, and can I give her the pattern, and tell her how many blocks it takes for a large-sized quilt.—There may be more than one pattern of that name, but the only one I know of is made to represent the brick-work of a sidewalk. You can make your blocks, or patches, any size, from that of the original brick (four inches by eight) down to one inch by half-an-inch, and you can easily estimate the number required by a simple calculation. Unlike the "block" pattern, you need not be particular about light and shade. Figure 1 shows the manner of laying the "pavement," or arranging the blocks.

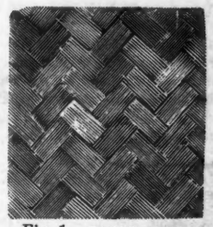
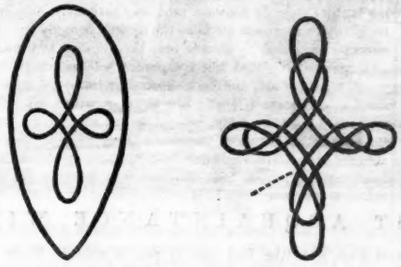


Fig. 1.—PATCHWORK.

CECILIA.—You do not say what size you want your "doll-pincushion," so I will give you the proportions of a large one, and you can diminish them to suit yourself.



Figs. 2 and 3.—SECTION AND BRAID.

You will need six pieces of the shape of figure 2, six inches long and three wide, (in the longest and widest places). Common red and white flannel, alternated, and braided with black braid, make quite a pretty cushion. If the "braiding pattern" on figure 2 is too simple, you can try figure 3, and if you begin it where the dotted lines point, you can keep the braid continuous. The center-section may be worked with the initial desired. You can cover the seams, where the sections are joined, with fancy braid or gimp. When the pincushion is well stuffed, (it should have unbleached muslin under the flannel, cut the same as the flannel, and sewed first,) sew the doll's head firmly on to it, then drape the waist, as in figure 4, (the red and white flannel together,) sew it in place at the back, and keep it in place in the front, by sticking a large pin through the center-folds into the cushion.

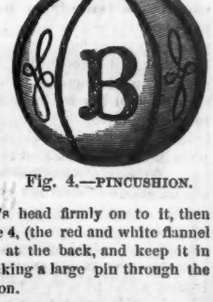



Fig. 4.—PINCUSHION.

MINNIE C.—Instructions for making a card-receiver were given in the *American Agriculturist* a few months ago. We kept insects off of our rose-trees, by pouring tobacco-water over the stems, and the way we prepared the tobacco-water was to take the stumps of cigars our gentlemen left after smoking, put them into a bottle, cover them with water, and let them stand a day or two. After using from the bottle what you require, add more water, and shake it well, for future use.

M. J. K. says: "Dear Aunt Sue: Will you please give us the solution of the accompanying riddle? It is very old, and we can not find anybody who knows the answer. Papa says, 'write and ask Aunt Sue; if she can't tell you, nobody can.'"....This is the enigma:

"There was a man of Adam's race,
Who had a certain dwelling-place;
He had a house all covered o'er,
Where no man dwelt, since or before.

"It was not built by human art,
Of brick or lime in any part,
Of rock or stone in cave or kiln,
But curiously was wrought within.

"'Twas not in heaven, nor yet in hell,
Nor on the earth where mortals dwell;
Now, if you know this man of fame,
Tell where he lived and what his name."

According to Scripture, that "man" only tarried three days and three nights in that "curious" "dwelling-place," and his name was "Jonah."

MILLY F. W., another puzzled one, writes: "I have been given a problem to find out, and I can't see any sense in it."...."Brooks and Smith went out shooting. Brooks shot four pigeons, and Smith shot Brooks. How many birds did they get in all?—Answer: 17."—Of course, the problem was given to you in writing, Milly; it is a sort of a *catch*, and the catch is in writing the B of Brook's name (as many do) like the figure 13. If you look at it now, with this explanation, you will wonder you didn't notice it before: "Brooks shot four pigeons, and Smith shot 13 rooks."—4+13=17.

## The Doctor's Talks—About Iron and Steel.

To answer the simple questions as to the difference between cast and wrought iron, and between iron and steel, I thought best to begin back at the beginning, and last month I told you in what shape iron was found in the earth, the *ore*, and how it is separated from the ore, or *reduced*, as it is called. You will recollect that I told you it was by heating the iron ore with coal. That the coal or carbon took the oxygen away from the iron, and left that by itself. This is a very simple process, and is still followed, but it will answer for only the very purest ores, those that contain only iron and oxygen, or are pure oxides of iron. Much of the iron ore of the world, though very good ore, is not so pure as this, but has with it other matters, and iron can not be separated by simply roasting it with coal. One of these matters is *silex*, which you know in the form of pure sand, and in order to get the iron from these ores, the silex must be got rid of. So besides coal, there is put into the furnace with these ores, a lot of limestone. Lime at a high heat readily unites with the silex, and form a sort of glass, which melts and floats above the melted iron, the lime taking the silex away from the iron, leaves that to be drawn off. Whatever is added to an ore in this way, to aid in separating the metal, is called a *flux*, and the melted flux with the impurities of the ore, is the *slag*.

In whatever way iron is obtained from the ore, it is cast iron, which is usually run into a gutter in a bed of sand, from the sides of which, at right angles, go off shorter gutters, into which the melted iron runs, and there cools, as short, thick, rough bars known as *pigs*, and iron in this shape is *pig-iron*. It is supposed to have been given this name because the pigs in a row along the sides of the central gutter, reminded some one of a large litter of real pigs sucking at their mother. You know how many things are made from cast iron, from the heavy pillar that holds up a building, to the smallest hinge; you know that our stoves, our cooking pots and skillets, and an almost endless number of things are of cast iron. To cast these, molds have first to be made, and the pig-iron put into a furnace with coal and melted again, and when melted it is run into the mold or *cast*. I can not now tell you about the molds, other than that they are made by bedding a *pattern* of the article to be made of iron, in very fine sand, taking it out again, and then pouring in the melted iron to fill the place made by the pattern. Molding is a trade by itself, and one that often requires much skill and ingenuity; when there is a chance, boys and girls should try to visit a foundry, and see how these things are done. I have said that cast iron could be melted, and this makes it for many things the most useful kind of iron, but it is also very brittle. On every place there is in some corner a box or heap of old iron, where broken stove covers, kettles, pieces of farm machines, and other things, show that iron is not so strong but it will break; if you strike some not very thick piece of the old iron a sharp blow with a hammer, you will see how short it breaks; now look at the broken surfaces: they are not smooth like broken glass, but look all full of rough points. Cast iron is not pure iron, in

THEIR FIRST ACQUAINTANCE WITH WATER.

separating it from the ore, it has combined with some of the carbon or coal used in the furnace, and when it melts and runs from the furnace, it is a compound of iron and carbon; the amount of carbon varies from two to five per cent, i. e., in every hundred pounds of iron, there are from two to five pounds of carbon, and it is this which mainly makes the iron brittle, and also allows it to be melted; I say "mainly" because there are impurities in the ore which affect the quality of iron, but we need not talk of them now. This brings us to the real difference between cast and wrought iron—cast iron contains carbon, and wrought iron does not. To get wrought iron, then, we must get rid of the carbon, and how do you suppose this is done? By burning it out. You know that coal is carbon, and that it will burn, but the carbon in the cast iron is so mixed with the iron that it is difficult and slow to burn out. To make wrought iron, the pigs of cast iron are put into a very different kind of a furnace from the one used in melting cast iron; it has a broad hearth, and is so built that the flame will play down upon it, and a plenty of air will pass in also. Here the iron melts on the floor of the furnace, and as the flames rush over it they burn out the carbon; the iron is stirred now and then, and when it gets thick and pasty, and does not run any more, it is made into lumps or balls, and taken to the squeezer, a big hammer, which pounds the lump, and squeezes out any impurities, which remain melted while the pure iron is only pasty. This operation is called *puddling*, and the lumps are *blooms*. If we compare this iron with cast iron, we shall see how very different they are. No matter how small a piece you take, you will not be very likely to break it, but if you hammer at a piece it will spread, or in other words it is *malleable*, while cast iron will break instead. Then it is very difficult to melt wrought iron, so much so that it is not worked in that way. It is also very different from cast iron, from the fact that it can be *welded*. When heated very hot—white hot—wrought iron becomes very soft and pasty, and when a smith wishes to join two pieces, he puts both in the fire and heats them to this pasty state; he then puts them together on his anvil, and hammers them so that the two parts, being in this soft condition, stick together perfectly. There are other ways of making wrought iron from cast iron, and wrought iron is sometimes made directly from some ores, but the one I describe was the first, and is now much practiced. It has taken so long to tell about cast and wrought iron, that we must let steel go over to another month. Let us sum up. Cast and wrought iron really differ in this: wrought iron is nearly pure iron, while cast iron is a compound of iron and carbon. I say *nearly* pure, because in practice it is not found easy to remove every trace of carbon, though the amount left is very small, not more than one part in four hundred. Cast iron gets its carbon from the coal used in reducing it from the ore, and is turned into wrought iron by burning out this carbon. Cast iron is easy to melt, it will melt in a good hard-coal fire, while wrought iron is so difficult to melt, that very few persons have ever seen a piece that has been melted. Cast iron when hammered does not spread, but breaks off short, and shows a shining grained surface; the wrought spreads when hammered, and if heated may be worked into almost any desired shape, it is most difficult to break, and when broken has a dull, stringy fracture. Cast iron is more useful for some purposes, because it can be melted and cast into molds, while wrought iron must be worked by hammering, and joined by welding. Cast iron is often very hard, and the other much softer, as may be seen by filing or drilling the two. Now if you wish something to think of, try to count up the uses of iron in these two forms—cast and wrought—or imagine what a world this would be, should the supply of iron suddenly cease. We think of gold as a very valuable metal, but you will not be long in declaring which could be best spared, iron or gold.

THE DOCTOR.

## The Ducklings First Experience.

Is there anything more cunning than a duckling? One is ever so many times funnier than a little chick, which seems to go at business as soon as out of the shell; but the duckling seems to be astonished, and looks as if it said to itself, "Where am I, and what am I here for?" Then when the little downy, puffy lump begins to run about, how awkward it looks. Such big feet and such a broad bill! The chick is brighter and livelier until you see the two where there is a plenty of water, and then the duckling's ways are the most pleasing. Ducks may be brought up from the egg without ever seeing any more water than a mere pan or trough for bathing, and appear to do well, but they are always seen at their worst on land, and at their best in the water, and when they are gracefully sailing about they are much handsomer than when waddling along on the ground. They are formed for the water, their feet, their shape, and all say plainly that they are water birds, and we do not think it right to keep them away from it. If you are in doubt, just ask the birds, or what is the same thing, show them the water, and they will say that they like it by going for it. Still ducklings do not like water in every way, as the picture shows, and they seem to be very much surprised that water coming down upon them is not pleasant. They heard the water, and they felt that they were made for it, but the water was rather too rough for them. Let us hope that their next acquaintance will be with smoother water, which they can look down upon, and not be obliged to look up at, as the surprised little things do in the engraving given above.

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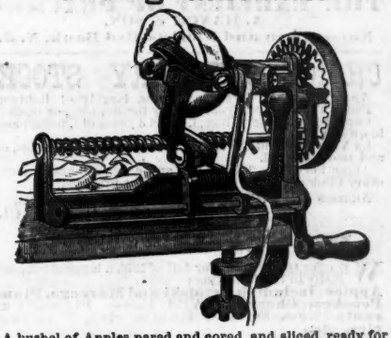

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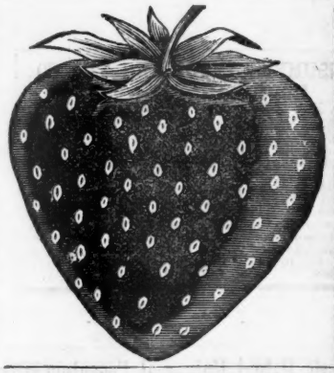

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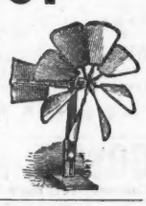

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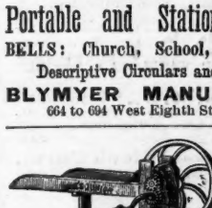

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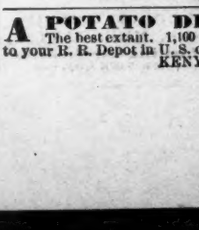

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In the latter part of February, 1877, an International Exhibition of Products of the Dairy will take place at Hamburg, under the Honorary chairmanship of MAYOR DR. KIRCHENPAUER OF HAMBURG, COUNT VON SCHLIEFFEN OF SCHLIEFFENBERG in Mecklenburg-Schwerin, L. H. RABE AT EILBECK, and ETATSRATH TESDORPF-OURUPGAARD on the Island of Falster. The Programm of this exhibition, which will comprise besides Butter and Cheese, also Machines and Implements used in connection with the Dairy and the raising of Cattle, as well as Scientific objects concerning this branch of agriculture, may be had gratis of the Secretary of the Executive-Committee, DR. JURIS RICHARD SEELEMANN, No. 25 A. B. C. Strasse, Hamburg.—*The Executive-Committee:* MAYOR DR. KIRCHENPAUER, Chairman; ROB. M. SLOMAN, Vice-Chairman; ALBERTUS VON OHLENDORFF, Treasurer; DR. RICHARD SEELEMANN, Secretary; G. A. BOYSEN, of the firm of Ahlmann & Boysen; EMIL GUESSEFELD; G. F. SCHWABE; G. F. VETT; PETER WETZEL.

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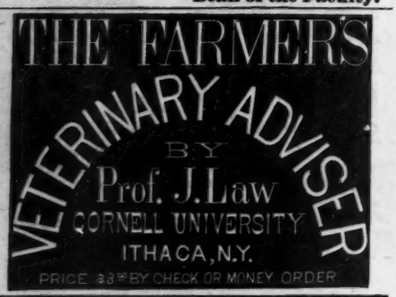


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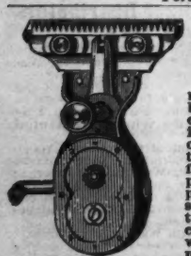

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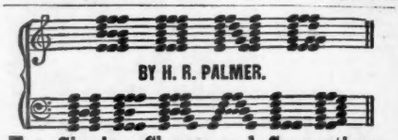


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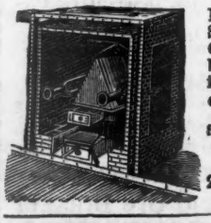

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## Continued from p. 328.

**The Potato Bug.**—"Logan," Utah, asks, "Can you explain why the Colorado potato beetle has never migrated west of the locality in which it originated?"—The insect did not migrate eastward, until settlers planted potatoes, and provided it with food for its abundant increase, and thus tempted it to move eastward. In the opposite direction there is nothing to eat, and, like other armies, this of Colorado can not move without a *commissariat*.

**A Tree-Fence.**—"D. O. S.," Saginaw Co., Mich. There are several fences in the Western States, consisting of rows of trees, with wires stretched from one tree to another, that are satisfactory to their owners. One of these consists of maple trees, and some of white willows and cottonwoods. We see no reason why such fences might not be useful, and as permanent, or more so, as posts. The wires are fastened to the trees by staples in most of these fences. Where cottonwoods or willows thrive, these might be used for this purpose. We have not heard of the lightning injuring any wire-fence, and doubt if it would, if it should strike one.

**Scab in Sheep.**—"R. O. L.," Rock Island, Ill. Scab is a disease that is easily cured, if the proper remedy is sought. This is dipping in a decoction of tobacco and sulphur in hot water. Full directions for applying this remedy, and for the general management of sheep are given in Stewart's "Shepherd's Manual," price $1.50.

**Fleas on Chickens.**—"A. G.," Hamilton, Canada. To get rid of fleas, the chicken house should be *thoroughly* whitewashed—not half done—with hot lime-wash. The floor should be well sprinkled with a solution of carbolic acid, and the roosts thoroughly greased with a mixture of one pound of lard, one pint of raw linseed oil, a quarter of a pint of kerosene oil, and a quarter of a pound of sulphur. This will be rubbed off on to the feet, legs, and feathers of the fowls, and soon rid them of vermin.

**The Best Grain for a Horse.**—"H. B. B.," Waddam's Center, Ill. The best grain for a horse is certainly oats; the next is barley; corn as a steady feed is not wholesome at all. Oats have about the requisite quantity of nutritious and indigestible matter to be healthful, and barley approaches very near to oats in this respect. The actual values of these grains are as nearly as possible equal to their usual market values, the latter being in reality based upon the former.

**Diseases of Cattle.**—"H. S.," Durham Park, Ks. There are several books on diseases of cattle that would be useful to a stock breeder. Different authors have different methods of treatment, and have observed various different phases of the same disease. It is therefore sometimes useful to consult more than one author. Dadd's "American Cattle Doctor," price $2.50, Clater's "Cattle Doctor," an English work, price $8.00, and a new work by Prof. Law, "The Farmer's Veterinary Adviser," price $3.00, are all useful to keep in the house. (We shall be glad to hear from you as you suggest.)

**Sowing Orchard Grass.**—"E. G. P.," Sulphur Springs, W. Va. Orchard grass may be safely sown with rye in September. It survived the winters of New York and Pennsylvania with safety, and could hardly be endangered in your milder climate. It resists summer drouths very stubbornly, and is a valuable grass for early pasture or hay, if cut early. As it is fit for cutting when red clover is in blossom, it is profitable to sow both; but as there would be some doubt of the clover passing the winter safely, unless sown very early this month, it would be best to sow it early in the spring. Orchard grass is apt to stool, and should therefore be sown thickly and evenly. A bushel and a half of orchard grass seed per acre (14 pounds to the bushel) would be a proper quantity, and of clover, 6 quarts per acre.

**Potatoes Mixing.**—"Farmer." There are some who claim that potatoes of different kinds, when planted near to each other, will mix. We do not believe it, and have never seen an alleged case that could not more rationally be accounted for by bud variation, instances of which from buds above ground are common.

**Carrying the Tail to one Side.**—"Subscriber," Juniata Co., Pa. To remedy the fault in a horse which carries the tail to one side, a simple operation may be resorted to, which is neither painful nor injurious. It is to cut through the skin on the side of the tail to which it is desirous to draw it over, a few scores close together, removing the skin between two or three of the scores. Or the skin may be fired with a sharp-edged instrument, and a few scores made close together upon the side required. Then a thick pad is placed upon the crupper, so as to force the tail into the proper position, and keep it there until the skin on the side opposite to the pad is healed. After that the tail will keep its proper position.

**Turning Eggs During Incubation.**—Vaniz, Mississippi. It would be little trouble to pass the hand over the eggs in an incubator, and turn them occasionally, if thought necessary. It can do no harm, and may do good. Dipping the eggs in tepid water two or three times during the process is advisable, and in doing this they will be turned and the bad ones detected.

**To Prevent Washing of Hillsides.**—"J. A. C.," Villanow, Ga. There are objctions to making hillside ditches, or terracing the sloping surface to prevent washing. Washing may be prevented by plowing in a diagonal direction down the slope; first throwing two furrows together, so as to make ridges every 20 feet apart, and then plowing the spaces between these in lands, with open furrows between them. The rain will then gather slowly from 10 feet upon each side, into the open furrows, along which it will flow gently, not having much fall, until it reaches the bottom; where it will spread all over the surface without injury to it. If in addition to this the land be subsoiled once every four or five years, most of the rain would be absorbed, and the surface would not wash and gully.

**Draining by Wells.**—"W. W.," Fulton Co., Ill. In draining by wells, the wells must be dug down to a gravel or sandy subsoil, or at least one that will absorb the water. The drains should be of the usual depth, 4 feet. A fall of six inches in 100 feet, would be sufficient for the drains. In case sediment should collect in the wells to interfere with their working, which is very improbable, it would be easy to clear them out every 20 years or so. Where there is a deep heavy clay soil, and no gravel, this method would not be effective.

**Kohl-Rabi.**—"W. W. P.," Oakwood, D. T. Kohl-Rabi, or turnip-rooted cabbage, is considered as a valuable food for stock, especially milk cows, sheep, and pigs. It has rarely been grown in this country, except in gardens, but in England and parts of Europe it is largely grown as a field crop for stock feeding.

**Profitable Crops in the South.**—"T. G.," Kittrells, N. C. Neither flax nor hops at present promise to be profitable in the Southern States. Flax is only profitable where there is a near-by market for the seed or fiber, and hops depend very much upon a peculiar climate and soil for quality, and of course price. The idea that these special crops are highly profitable is delusive to a very great extent, on the whole they are not inviting to any farmers, but those who understand the "ins and outs" of the business. Cotton and tobacco can not be made profitable in the long run, unless used as a part of a rotation in which they take their regular place alternating with other crops, as corn, wheat, peas, potatoes, clover, etc., which can be used as feed for stock, and made the basis of a supply of manure to enrich the soil and gradually increase its fertility. It is no easy matter to manage a farm skillfully, and yet it is necessary for success to manage it so that, while the crops grown may be profitable, the profit may not be made at the expense of the soil, which is the capital. Without knowing the previous mode of your management, we can only make these general suggestions.

**Winter Oats.**—"W. C. M.," Wicomico Co., Md. We believe Messrs. Landreth & Sons, of Philadelphia, have fall oats for sale, if not, they would probably procure them for you.

**Grass for Pasture.**—"B. B.," Denison, Iowa. If a temporary pasture only is required, rye sown in September, or even later, would furnish excellent feed early in spring, and clover sown in the spring would supply fall pasture. It is difficult to procure a sufficient growth of the ordinary field grasses, as timothy, orchard grass, or blue grass, to make a pasture the first year. Two season's growth at least are required to make a pasture of these grasses. Oats or Hungarian grass would make a good crop to be cut and fed green, but to pasture either would be to waste the most of it. If a peck of timothy and one bushel of orchard grass per acre were sown alone early in September on well prepared ground, the crop might be pastured next summer, unless a very dry season should occur. If two-thirds of the seed were sown, and six quarts of clover per acre were added in the spring, the pasture might last three or four years.

**Plants Named.**—"M. L. H.," Hutton, Ill. The low, branching pink-flowered plant is *Sabbatia angularis*, the "American Centaury," and in some localities called "Star-flower," and "Bitter-bloom." It belongs to the Gentian Family, and, like the gentians, is very bitter; it is sometimes used as a tonic medicine...."A. H. F.," Ipswich, Mass. The Variegated Spurge, *Euphorbia marginata*, a native of Kansas and Nebraska. It is a quick-growing, much-branched annual, the bracts or floral leaves of which are margined with white. It is often cultivated in gardens, where it produces a pleasing effect in contrast with dark-colored plants.

**Martynia Pickles.**—Several Inquirers. The fruit must be gathered when about half grown or less; it must be very tender, so that it will break short, without any fibre. A little practice will show the proper size. Gather every two or three days, as they soon get hard, and put at once into brine strong enough to float an egg. They are to remain in brine about 10 days. If desired to keep them longer before pickling, change the brine for fresh. When ready to pickle, take the martynias from the brine, wash, put into a jar, and cover them with vinegar; let them soak for a day or two. Make a pickle with two pounds sugar to one gallon vinegar, and such spices, and as many, as are fancied; we use cloves, allspice, and mace; any others may be added. Tie the spices in a muslin bag, put this with the sugar into the vinegar, and bring to a boil; when hot, pour over the martynias, which have been removed from the vinegar in which they are soaked, and placed in a jar or keg. Place the bag of spices in with the martynias, where it may remain until the strength is exhausted. As with other pickles, it is well to heat up the vinegar at intervals of two or three days, and pour back over the martynias, doing this two or three times. Those who have once tried martynia pickles, will be sure to provide for a supply every year.

**Salted Cucumbers.**—Questions as to these come every year. We do not know of any market for them in New York. All pickling establishments that we know anything about, purchase the cucumbers in the fresh state, and treat them in their own way. During the late war there was a demand for pickles in any form, but at present salted cucumbers, whatever may be the case elsewhere, are not wanted in the New York market.

**Chopped Pickle.**—This is easily prepared and generally liked. We every year put up a large jar of it, though we have no rule for making it. Green tomatoes, cabbage, cucumbers, peppers, and a few onions, are all chopped small, well salted, and allowed to stand over night. The next day they are all drained on a colander, and a boiling vinegar, to which 2 lbs. sugar for each gallon, and spice *ad-libitum* has been added, is poured over the mixture. In a few days drain off the vinegar, boil, and return it.

**Ayrshire Herd Books.**—"W. J. E."—If the editors of a herd book have made certain rules guiding them in recording entries, they will naturally and consistently adhere to them. But as regards this breed, there need be no trouble, as there are three Ayrshire Herd books, and the one referred to is not the one in which this stock in question was previously entered, as it is only in its first volume so far. Probably the Herd Book you should have selected is that edited by Mr. J. D. W. French, North Andover, Mass.

**The Cause of Smut in Corn.**—"F. H. D.," Lowell, Mass. The immediate "cause of smut" is the presence of the spores (or seeds) of *Ustilago maydis*. The swellings and distortions seen on various parts of the plant, especially upon the young grain, are due to the presence of a minute fungus (to which the above name has been given) that lives and grows within the tissues of the plant; the black substance, which, when ripe, becomes a black powder, is the reproductive portion, or spores, which answer the same purpose that seeds do in plants of a higher grade. These spores are individually so exceedingly minute that, when magnified 250 diameters, they appear only as large as the head of an ordinary pin, and may easily escape detection if attached to the seed corn when sown. These spores may be brought by the wind, or carried to the field with the manure, and smut appear in a field even if the precaution has been taken to pickle the seed before sowing.

**Red Ants.**—We have this past summer received numerous letters about the small red ants that so often give the housekeeper so much trouble. These letters among them enumerated about all the remedies we had ever heard suggested, stating that they had been tried in vain. At length, after the letters, came the ants themselves, invading and rendering useless a pantry. We procured some fresh "Persian Insect Powder," and sprinkled it over the shelves; the next morning myriads of dead ants were swept up. Two or three applications, and not an ant was to be seen. This "Insect Powder" (Pyrethrum) is now sold by the pound in bulk by the leading druggists. It should be fresh and strong smelling, and be kept in a well closed bottle or jar.

**White Huckleberries.**—"P. W. T." sends specimens collected in Mansfield, Mass., and wishes information about them. Huckleberries are apt to vary in the color of their fruit, several species producing both blue and black berries; occasionally the fruit is red, and more rarely white. We have had specimens from most of the New England States, but never heard of their occurrence in any considerable quantities. Should it ever happen that the wild fruit gets sufficiently scarce, to make the cultivation of the huckleberry profitable, the white variety will no doubt be much prized.

**Very Like a Swindle—Be careful WHAT you Sign.**—Much trouble comes to farmers, from the bogus lightning-rod men, and other swindlers, through carelessly signing documents they do not read carefully and see what they really amount to. A neighbor signed an agreement (as *he* supposed) to pay $15 for a lightning-rod. When the "principal" disappeared his "successor" presented, the other day, the matured agreement, which was, in fact, $128, less $15, or $113!!—For some time past an "Agricultural Manufactory" in New Hampshire has had an agent or agents traveling, establishing "agencies" in New England, for the sale of farm implements. The local agent appointed, usually a farmer, gives an order for a lot of sample implements that he thinks he can use or dispose of readily; they are "billed" to him at a good discount, and he (foolishly) gives a note for them at once, payable a year ahead, or when they are sold, perhaps. His note, duly executed, is carried away by the traveling agent, is turned over to other parties, but the maker of the note whistles in vain for the implements. To quiet him, various excuses, "fire," "strike of hands," etc., are given for not promptly forwarding the implements. Since our humbug article was in type, we have received a list of 23 persons, in as many towns in Connecticut, who have given their notes thus, and we hear that there are a multitude of others in like condition, some of whom gave their notes, six, eight, and ten months ago for $100 and upwards, and some of whom have not yet been able to get a single one of the things ordered and immediate delivery promised. A meeting of these men is soon to be held in Hartford, when further facts will come out. Let all mark well the heading to this item, and *heed* it.

**Gathering Clover Seed.**—"D. A. McA.," Jackson, Tenn. Two crops of clover seed cannot be gathered in one season from the same field. To save a crop of seed, the clover is cut early, or when in full blossom, for hay, and is then left to grow until it blossoms a second time, when it matures its seed in September. The seed may be gathered by cutting it with a mowing machine, to the cutter-bar of which a piece of sheet iron is fixed by two or three small bolts. The sheet-iron apron drags behind the cutter-bar. The holes for the bolts may be drilled through the cutter-bar by any blacksmith, and when done with, the sheet iron apron may be removed. The cutter-bar may be raised to cut as high as possible, and a machine having an adjustable bar would be most suitable for this work. The clover heads gathered upon the apron may be raked off from time to time in heaps, which may be left to be rained upon and dried until cured. When finally dried, the heads are stored until cold weather, and the seed should be hulled upon a dry, frosty day.

**Ticks on Lambs.**—"J. L. M.," Washington Co., Pa. Every person who keeps sheep ought to have a good hand-book to which he may refer for advice and directions as to their management. The small cost of such a book would be repaid many times in a year to one who keeps a flock. Refer to Stewart's Shepherd's Manual, for a method of destroying ticks on lambs.

**Feeding Oats to a Colt.**—"E. D.," Westfield, N. J. There is no truth in the idea that to feed whole oats to a colt will "cause a distension of the veins of the lower jaw, and attract the blood and humors down into the eye, and cause blindness." But it is better to have oats crushed for a young colt, or even for horses, as they are more digestible when so treated than when fed whole. A colt of two months should not have many oats. A handful daily is sufficient to begin with.

**Canning Green Corn.**—Each season of green corn we have numerous complaints of failures in canning it, and asking how it should be done. We must answer now, as in former seasons, that it is not practicable on a small scale, as it will not pay to go to the expense of the apparatus, and give the time required, simply to put up a family supply. Moreover, with the most experienced the process is not certain, and the regular canners have more trouble with this, than with any other article, and often fail altogether. The corn is boiled, cut from the cobs, put into cans, and the space being filled with a syrup of sugar and salt, the can is soldered tight. The cans are then placed in a bath of a solution of *chloride of calcium*, a salt obtained from the refuse of salt works; a solution of this has a much higher boiling point than water, and the cans being placed in it, they are heated several degrees above 212°. After boiling in this for four hours, the cans are taken out, a small hole is pricked in the top of each, and as soon as the steam has blown off, the holes are at once closed by a drop of solder, and the cans returned to the bath for another boiling of three hours' duration. It will be seen that the process is quite too troublesome for the average housekeeper.

**Top-dressing Wheat with Straw.**—"R. W. W.," Perry, N. Y. It would do no injury to spread straw upon fall wheat as a protection against frost. On the contrary it might turn out to be of great benefit. Spread very evenly to get the most good.

**To Cure a Sucking Cow.**—"G. W. D.," New Brunswick, N. J. Try the perforated bit, described in the *American Agriculturist* for July, 1876.

**Dry Root Houses.**—"A. G.," Ontario. In the *American Agriculturist* for Oct., 1873, and Apr., 1876, there are descriptions and illustrations of different kinds of above-ground root houses. If the soil is wet, it is only necessary to build the most suitable one of these upon the surface, and dig a sufficient drain around it to carry off the water, procuring the earth for covering from the drain or elsewhere.

**Double Plow—Farming in Louisiana.**—"C. N. F.," Chelsea, Mass. The Deere Double Plow is an excellent implement for light soils. It can be procured of Deere & Co., Moline, Ill. There is no book that treats specially of farming in Louisiana. As you are acquainted practically with agriculture all that is necessary in beginning in that locality is to observe the methods of the farmers there, and to adapt your own experience to the peculiar necessities of your new situation. It is well to make innovations cautiously, and be willing to learn some things from your new neighbors.

**Coco-grass. Nut-grass.**—"C. H. C.," Ark. This is not a proper grass, but belongs to the related though very distinct family of sedges. Its botanical name is *Cyperus rotundus*, var. *Hydra*, and multiplies by means of numerous small nut-like tubers which are abundantly produced under ground. If any of our friends have been able to successfully subdue this, in many places a serious pest, we shall be glad to know the treatment they found most efficacious.

**Artificial Tobacco.**—The present course of invention or improvement so called, threatens to displace everything, and replace it with a substitute. Thus for butter and cream in cheese, we have the oil of tallow, or oleo-margarine; for coffee we have chickory; for leather we have paper; for wool, shoddy; for sugar, glucose from sawdust; and now we have paper tobacco, "a much improved article, and better in every way than the natural leaf" the inventors say. It is said every steamer to Havana now takes out several thousand reams of straw paper, soaked in the juice of tobacco stems and other waste, rolled, veined, and printed with spots to closely imitate the natural leaf. It is then made up into cigars both as filling and wrappers, or mixed with leaf and returned here to be sold as real Havana cigars. No wonder that Connecticut seed-leaf goes a begging!

**Cotton Seed for Manure.**—"W. J. E.," Birmingham, Ala. The usual method of using cotton seed, when there has been no time to compost it for a fertilizer, is to scatter 30 or 40 bushels per acre broadcast and plow it under. For winter oats, to be sown this month, the cotton seed may be scattered, and the oats sown, and both plowed in together with a light furrow. It would probably be better to use 100 lbs. of phosphate early in the spring than now at the sowing. If possible to do it, the cotton seed should be rotted by composting with some yard or stable manure, and some leaf mold or swamp muck.

**The Morel.**—"S. P. W.," Quincy, Ill.—This highly esteemed edible fungus, *Morchella esculenta*, is a native of this country, as well as of Europe and Asia. We have known of no attempts to cultivate it, nor can we learn that it has been done in Europe. It being found more abundantly upon land recently burned over, than elsewhere, it was formerly the custom of the German peasants to set fire to the woods and copses, in order to induce a growth of the morel; this became so serious a matter that it was prohibited by very stringent laws. It is likely that it may be cultivated, by imitating the natural condition of the ground on which it is found wild, and taking up some of the earth where it grows, to stock the bed with spawn.

## State, County, and other Fairs in 1876.

### State and Industrial Fairs.

| | | |
|---|---|---|
| Alabama | Montgomery | Oct. 24-29 |
| American Institute | New York | Sept. 6-Nov. 11 |
| California | Sacramento | Sept. 18-23 |
| Camden Industrial | Camden, N. J. | Oct. 2- 4 |
| Centennial | Philadelphia | May 10-Nov. 10 |
| Connecticut | Hartford | Sept. 12-15 |
| Chicago Industrial Ex. | Chicago, Ill. | Sept. 6-Oct. 9 |
| Illinois | Ottawa | Sept. 4- 9 |
| Indiana | Indianapolis | Sept. 25-Oct. 18 |
| Indiana Industrial | Worthington | Oct. 2- 6 |
| Iowa | Cedar Rapids | Sept. 11-15 |
| Iowa Industrial | Des Moines | Oct. 5-Nov. 5 |
| Kansas City Exhibition | Kansas City, Mo. | Sept. 18-23 |
| Maryland Hort. Society | Baltimore | Sept. 19-22 |
| Mass. Hort'l Society | Boston | Sept. 19-22 |
| Michigan | Jackson | Sept. 18-22 |
| Minnesota | St. Paul | Oct. 3- 6 |
| Nebraska | Lincoln | Sept. 25-29 |
| Nevada | Reno | Sept. 11-16 |
| New Hampshire | Manchester | Oct. 3- 5 |
| New Jersey | Waverley | Sept. 18-22 |
| New York | Albany | Sept. 11-15 |
| New York Hort. Soc'y | New York | Sept. 19-22 |
| Ohio | Columbus | Sept. 4- 8 |
| Oregon | Salem | Oct. 9-15 |
| St. Joseph Agr'l Ex'n | St. Joseph, Mo. | Sept. 25-30 |
| St. Louis Association | St. Louis, Mo. | Oct. 2- 7 |
| Texas | Austin | Nov. 14-18 |
| Virginia | Richmond | Oct. 31-Nov. 3 |
| Wisconsin | Milwaukee | Sept. 11-16 |
| Worcester Hort. Soc'y | Worcester, Mass. | Sept. 20-22 |

CENTENNIAL SPECIALS.

| | | |
|---|---|---|
| Autumn Butter and Cheese, at Philadelphia | | Oct. 17-21 |
| Autumn Honey and Wax | do. | Oct. 23-Nov. 1 |
| Autumn Vegetables | do. | Sept. 19-23 |
| Cereals | do. | Sept. 25-30 |
| Northern Pomological Products | do. | Sept. 11-16 |
| Nuts | do. | Oct. 23-Nov. 1 |
| Peaches | do. | Sept. 4- 9 |
| Potatoes and Feeding Roots | do. | Oct. 2- 7 |

*Live Stock.*

| | | | |
|---|---|---|---|
| Dogs | Sept. 1- 8 | Poultry | Oct. 27-Nov. 6 |
| Horses | Sept. 1-14 | Sheep | Oct. 10-18 |
| Neat Cattle | Sept. 21-Oct. 4 | Swine | Oct. 10-18 |

### District Fairs.

| | | |
|---|---|---|
| Indiana, Northeastern | Waterloo | Oct. 10-13 |
| Iowa, Northeastern | Dubuque | Sept. 2- 4 |
| Iowa, Northern | Bismark | Sept. 19-22 |
| Minnesota, N. Western | Winona | Sept. 25-30 |
| New York Central | Utica | Sept. 5- 8 |
| New York, N. Western | Baldwinsville | Sept. 21-23 |
| New York, Western | Rochester | Aug. 29-Sept. 2 |
| Ohio, Central | Mechanicsburg | Sept. 19-22 |
| Ohio, Central | Orrville | Oct. 11-14 |
| Ohio, Northern | Cleveland | Sept. 11-15 |
| Ohio, Southern | Dayton | Sept. 25-29 |
| Ohio, Western | Piqua | Oct. 3- 6 |

PROVINCIAL FAIRS.

| | | |
|---|---|---|
| Colchester | Truro, N. S. | Oct. 9-13 |
| Fruit Growers' Asso'n | Wolfville, N. S. | Oct. 4- 5 |

### County and Town Fairs.

CONNECTICUT.

| | | |
|---|---|---|
| Fairfield | Danbury | Oct. 3- 7 |
| New Haven | Meriden | Sept. 20-22 |

NEW HAMPSHIRE.

| | | |
|---|---|---|
| Contocook | Hillsboro' Bridge | Sept. 19-20 |
| Conn. River Valley | Claremont | Sept. 5- 7 |
| Cheshire | Keene | Sept. 19-21 |
| Grafton | Plymouth | Sept. 26-28 |
| Hillsborough | Nashua | Sept. 12-13 |
| Merrimack | Concord | Sept. 20-21 |
| Oak Park Association | Greenfield | Sept. 14-15 |
| Stratford | Dover | Sept. 12-14 |

MASSACHUSETTS.

| | | |
|---|---|---|
| Barnstable | Barnstable | Sept. 19-20 |
| Berkshire | Pittsfield | Oct. 3- 5 |
| Bristol | Taunton | Sept. 26-28 |
| Bristol Center | Myrick's | Sept. 13-15 |
| Deerfield Valley | Charlemont | Sept. 21-22 |
| Essex | Danvers | Sept. 26-27 |
| Franklin | Greenfield | Sept. 28-29 |
| Hampden | Springfield | Oct. 3- 4 |
| Hampden, East | Palmer | Sept. 21-22 |
| Hampshire | Amherst | Sept. 26-27 |
| Hampshire, Franklin & Hamp'n. | Northam'ton | Oct. 4- 6 |
| Highland | Middlefield | Sept. 14-15 |
| Hingham | Hingham | Sept. 27-28 |
| Hoosac Valley | North Adams | Sept. 19-21 |
| Housatonic | Great Barrington | Sept. 27-29 |
| Marshfield | Marshfield | Oct. 4- 6 |
| Martha's Vineyard | West Tisbury | Oct. 3- 4 |
| Middlesex | Concord | Sept. 27-29 |
| Middlesex, North | Lowell | Sept. 27-28 |
| Middlesex, South | Framingham | Sept. 19-20 |
| Nantucket | Nantucket | Sept. 27-28 |
| Norfolk | Readville | Sept. 28-29 |
| Plymouth | Bridgewater | Sept. 20-22 |
| Union | Blandford | Sept. 19-20 |
| Worcester | Worcester | Sept. 21-23 |
| Worcester, North | Fitchburg | Sept. 26 |
| Worcester, Northwest | Athol | Oct. 3- 4 |
| Worcester, South | Sturbridge | Sept. 7- 8 |
| Worcester, Southeast | Milford | Sept. 27-28 |
| Worcester, West | Barre | Sept. 28-29 |

NEW YORK.

| | | |
|---|---|---|
| Allegany | Cuba | Sept. 26-29 |
| Broome | Maine | Sept. 26-28 |
| Broome | Whitney's Point | Sept. 6- 8 |
| Cattaraugus | Cattaraugus Reserva'n | Sept. 25 |
| Cattaraugus | Little Valley | Sept. 19-21 |
| Cayuga | Moravia | Sept. 26-28 |
| Chautauqua | Jamestown | Sept. 19-22 |
| Chemung | Elmira | Oct. 5- 7 |
| Chenango | Sherburne | Sept. 18-20 |
| Columbia | Hudson | Sept. 26-28 |
| Dutchess | Poughkeepsie | Oct. 3- 6 |
| Dutchess | Washington Hollow | Sept. 19-21 |
| Erie | Hamburg | Sept. 12-15 |
| Essex | Westport | Sept. 6- 8 |
| Franklin | Fort Covington | Sept. 19-21 |
| Franklin | Malone | Sept. 26-28 |
| Genesee | Batavia | Sept. 13-14 |
| Greene | Cairo | Sept. 20-21 |
| Hamilton | Earlville | Sept. 27-29 |
| Herkimer | Herkimer | Sept. 27-29 |
| Herkimer | West Winfield | Sept. 18-20 |
| Jefferson | Antwerp | Sept. 5- 7 |
| Jefferson | Carthage | Sept. 13-15 |
| Jefferson | Redwood | Aug. 30-Sept. 1 |
| Jefferson | Watertown | Sept. 20-22 |
| Lewis | Lowville | Sept. 19-21 |
| Madison | Brookfield | Oct. 2- 4 |
| Madison | Hamilton | Sept. 27-29 |
| Montgomery | Fonda | Sept. 19-21 |
| Niagara | Lockport | Oct. 5 |
| Oneida | Booneville | Sept. 5- 7 |
| Oneida | Rome | Sept. 18-22 |
| Oneida | Taberg | Sept. 25-27 |
| Oneida | Trenton | Sept. 12-14 |
| Oneida | Vernon | Sept. 30 |
| Oneida | Waterville | Sept. 26-27 |
| Onondaga, (Indian) | Onondaga Castle | Sept. 20-24 |
| Onondaga | Onondaga Valley | Sept. 26-27 |
| Onondaga | Skaneateles | Sept. 20-21 |
| Ontario | Canandaigua | Sept. 20-22 |
| Orleans | Albion | Sept. 29-30 |
| Oswego | Fulton Station | Sept. 19-22 |
| Oswego | Mexico | Sept. 12-14 |
| Oswego | West Phœnix | Sept. 26-28 |
| Otsego | Cooperstown | Sept. 25-27 |
| Otsego | Edmeston | Sept. 13-14 |
| Otsego | Oneonta | Sept. 26-28 |
| Otsego | Otsego | Sept. 28-30 |
| Otsego | Schenevus | Sept. 19-21 |
| Otsego | Unadilla | Sept. 20-22 |
| Richland | Sandy Creek | Sept. 13-15 |
| St. Lawrence | Canton | Sept. 12-14 |
| St. Lawrence | Gouverneur | Sept. 6- 8 |
| St. Lawrence | Potsdam | Sept. 19-21 |
| Saratoga | Saratoga Springs | Sept. 5- 8 |
| Schoharie | Schoharie | Oct. 3- 5 |
| Schuyler | Watkins | Sept. 14-16 |
| Seneca | Seneca Falls | Oct. 3- 5 |
| Steuben | Bath | Sept. 27-29 |
| Suffolk | Riverhead | Oct. 3- 5 |
| Tompkins | Ithaca | Sept. 11-13 |
| Warren | Warrensburg | Sept. 12-15 |
| Washington | Sandy Hill | Sept. 5- 8 |
| Wayne | Clyde | Sept. 27-29 |
| Yates | Penn Yan | Sept. 22-26 |

NEW JERSEY.

| | | |
|---|---|---|
| Union | Clarke | Oct. 3- 6 |

PENNSYLVANIA.

| | | |
|---|---|---|
| Centre | Bellefontaine | Oct. 2- 6 |
| Chartiers Valley | Cannonsburg | Sept. 20-22 |

OHIO.

| | | |
|---|---|---|
| Allen | Lima | Sept. 26-29 |
| Ashtabula | Jefferson | Sept. 26-29 |
| Athens | Athens | Sept. 28-29 |
| Auglaize | Wapakonetta | Sept. 27-29 |
| Belmont | St. Clairsville | Sept. 12-14 |
| Butler | Hamilton | Oct. 3- 6 |
| Carroll | Carrollton | Oct. 3- 6 |
| Clermont | Boston | Sept. 12-15 |
| Clinton | Wilmington | Sept. 12-15 |
| Columbiana | New-Lisbon | Sept. 26-29 |
| Coshocton | Coshocton | Sept. 26-29 |
| Crawford | Bucyrus | Sept. 26-29 |
| Cuyahoga | Chagrin Falls | Sept. 6- 8 |
| Drake | Greenville | Sept. 19-22 |
| Defiance | Defiance | Sept. 19-22 |
| Delaware | Delaware | Sept. 26-28 |
| Erie | Sandusky | Sept. 19-22 |
| Fairfield | Lancaster | Oct. 11-14 |
| Fulton | Wauseon | Sept. 27-29 |
| Gallia | Gallipolis | Sept. 27-29 |
| Geauga | Barton | Sept. 20-22 |
| Greene | Xenia | Oct. 4- 6 |
| Guernsey | Cambridge | Sept. 25-28 |
| Hancock | Findlay | Oct. 4- 7 |
| Hardin | Kenton | Oct. 11-14 |
| Harrison | Cadiz | Oct. 3- 6 |
| Hocking | Logan | Oct. 5- 7 |
| Huron | Norwalk | Sept. 26-29 |
| Jackson | Jackson C. H. | Sept. 14-15 |
| Jefferson | Smithfield | Sept. 27-29 |
| Knox | Mt. Vernon | Sept. 26-29 |
| Lake | Painesville | Oct. 4- 6 |
| Lawrence | Ironton | Sept. 12-15 |
| Licking | Newark | Oct. 3- 6 |
| Licking | Potaskala | Sept. 26-29 |
| Logan | Bellefontaine | Oct. 3- 6 |
| Lorain | Elyria | Oct. 30-31 |
| Lucas | Toledo | Sept. 26-29 |
| Mahoning | Canfield | Oct. 3- 5 |
| Marion | Marion | Oct. 3- 6 |
| Medina | Medina | Sept. 19-21 |
| Meigs | Rock Spring | Oct. 6- 7 |
| Mercer | Celina | Sept. 19-22 |
| Miami | Troy | Sept. 20-23 |

| | | |
|---|---|---|
| Morgan | McConnellsville | Sept. 20-22 |
| Morrow | Mt. Gilead | Sept. 20-23 |
| Muskingum | Zanesville | Oct. 3- 7 |
| Ottawa | Port Clinton | Sept. 26-28 |
| Paulding | Paulding | Sept. 26-29 |
| Perry | New Lexington | Sept. 20-22 |
| Pickaway | Circleville | Sept. 19 |
| Preble | Eaton | Sept. 26-29 |
| Putnam | Ottawa | Oct. 3- 6 |
| Richland | Mansfield | Oct. 3- 6 |
| Ross | Chillicothe | Sept. 12-15 |
| Sandusky | Fremont | Oct. 3- 6 |
| Shelby | Sidney | Sept. 19-22 |
| Stark | Canton | Sept. 26-30 |
| Summit | Akron | Oct. 3- 6 |
| Trumbull | Warren | Sept. 12-14 |
| Tuscarawas | Canal Dover | Oct. 3- 6 |
| Union | Marysville | Oct. 3- 6 |
| Van Wert | Van Wert | Sept. 21-23 |
| Warren | Lebanon | Sept. 20-22 |
| Washington | Marietta | Sept. 26-29 |
| Wayne | Wooster | Sept. 27-30 |
| Williams | Bryan | Sept. 27-29 |
| Wood | Tontogany | Sept. 26-29 |
| Wyandot | Upper Sandusky | Sept. 26-29 |

### INDIANA.

| | | |
|---|---|---|
| Allen | Fort Wayne | Sept. 11-15 |
| Bartholomew | Columbus | Sept. 12-16 |
| Boone | Lebanon | Sept. 4 |
| Boone | Thorntown | Sept. 18-23 |
| Cass | Logansport | Sept. 4- 9 |
| Carroll | Delphi | Sept. 26-29 |
| Clinton | Middle Fork | Sept. 4- 8 |
| Clinton | Frankfort | Sept. 11 |
| Clay | Brazil | Sept. 11-16 |
| Daviess | Washington | Sept. 12-16 |
| Elkhart | Goshen | Oct. 18-21 |
| Fountain | Covington | Oct. 3- 6 |
| Franklin | Brookville | Sept. 5- 8 |
| Fulton | Rochester | Sept. 14-16 |
| Grant | Marion | Sept. 26-29 |
| Greene | Linton | Sept. 26-30 |
| Gibson | Princeton | Sept. 18-22 |
| Hamilton | Cicero | Aug. 29-Sept. 1 |
| Harrison | Corydon | Aug. 29-Sept. 1 |
| Huntington | Huntington | Sept. 26-27 |
| Jackson | Seymour | Sept. 12-15 |
| Jasper | Rensselaer | Sept. 12-15 |
| Jasper | Remington | Sept. 22-25 |
| Jay | Portland | Sept. 19-22 |
| Jefferson | Madison | Sept. 25-29 |
| Jennings | Vernon | Sept. 12-15 |
| Johnson | Edinburg | Sept. 18-23 |
| Knox | Vincennes | Oct. 16-21 |
| Kosciusko | Warsaw | Sept. 26-30 |
| La Grange | La Grange | Sept. 27-29 |
| Lawrence | Mitchell | Sept. 26-30 |
| Madison | Anderson | Sept. 5- 8 |
| Marion | Valley Mills | Sept. 7- 9 |
| Martin | Loogootee | Sept. 11-16 |
| Miama | Peru | Sept. 11-15 |
| Morgan | Martinsville | Sept. 12 |
| Noble | Ligonier | Sept. 19-22 |
| Owen | Gosport | Sept. 5- 9 |
| Parke | Bridgeton | Aug. 28-Sept. 2 |
| Perry | Rome | Oct. 2- 6 |
| Pike | Petersburg | Sept. 4- 9 |
| Posey | New Harmony | Sept. 12-15 |
| Porter | Valparaiso | Sept. 27-29 |
| Randolph | Winchester | Sept. 19-22 |
| Rush | Rushville | Sept. 12-15 |
| Shelby | Shelbyville | Sept. 5- 9 |
| Spencer | East Enterprise | Sept. 12-15 |
| Stark | Knox | Sept. 23-30 |
| Sullivan | Sullivan | Aug. 29-Sept. 2 |
| Tipton | Tipton | Sept. 5- 8 |
| Vermillion | Newport | Sept. 5 |
| Vigo | Terre Haute | Sept. 19-23 |
| Warren | West Lebanon | Sept. 4- 9 |
| Warrick | Boonville | Oct. 10-14 |
| Wayne | Centreville | Sept. 5- 7 |
| Wells | Bluffton | Sept. 25-28 |

### ILLINOIS.

| | | |
|---|---|---|
| Adams | Camp Point | Sept. 12-16 |
| Boone | Belvidere | Sept. 19-22 |
| Brown | Mt. Sterling | Sept. 5- 8 |
| Bureau | Princeton | Sept. 12-15 |
| Carroll | Mt. Carroll | Sept. 19-23 |
| Cass | Virginia | Aug. 29-Sept. 1 |
| Champaign | Champaign | Aug. 29-Sept. 1 |
| Christian | Taylorville | Sept. 25-29 |
| Clark | Marshall | Sept. 21-23 |
| Clay | Louisville | Sept. 12-15 |
| Clay | Flora | Sept. 26-30 |
| Coles | Charleston | Sept. 12-16 |
| Crawford | Robinson | Sept. 10-12 |
| Cumberland | Majority Point | Sept. 6- 9 |
| De Kalb | Sycamore | Sept. 27-29 |
| De Kalb | De Kalb | Sept. 14-18 |
| Douglas | Tuscola | Sept. 19-22 |
| Du Page | Wheaton | Sept. 12-14 |
| Edgar | Paris | Sept. 5- 9 |
| Edwards | Albion | Oct. 3- 6 |
| Effingham | Effingham | Oct. 3- 6 |
| Fayette | Vandalia | Sept. 27-30 |
| Ford | Paxton | Sept. 19-22 |
| Ford | Gibson | Sept. 12-15 |
| Franklin | Benton | Sept. 26-29 |
| Fulton | Avon | Sept. 26-29 |
| Gallatin | Shawneetown | Oct. 2- 5 |
| Greene | Carrolltown | Sept. 26-28 |
| Grundy | Morris | Sept. 26-28 |
| Hardin | Elizabethtown | Sept. 20-23 |
| Henderson | Biggsville | Sept. 26-29 |
| Henry | Cambridge | Aug. 28-Sept. 1 |
| Iroquois | Onargo | Sept. 5- 8 |
| Jackson | Murphysboro | Oct. 11-14 |
| Jasper | Newton | Sept. 26-29 |
| Jersey | Jerseyville | Oct. 10-13 |
| Jo Daviess | Galena | Sept. 26-29 |
| Jo Daviess | Warren | Oct. 3 -6 |
| Kane | Geneva | Sept. 12-15 |
| Kane | Elgin | Oct. 7- 4 |
| Kendall | Bristol | Sept. 12-14 |
| Knox | Knoxville | Oct. 3- 6 |
| Lake | Waukegan | Oct. 2- 7 |
| Lawrence | Lawrenceville | Oct. 4- 7 |
| Livingston | Pontiac | Sept. 19-22 |
| Livingston | Fairbury | Sept. 12-15 |
| Logan | Atlanta | Aug. 29-Sept. 2 |
| Macon | Decatur | Aug. 29-Sept. 1 |
| Macoupin | Carlinville | Sept. 19-22 |
| Marion | Salem | Sept. 12-14 |
| Marion | Centralia | Sept. 19 |
| Marshall | Wenona | Sept. 25-29 |
| Mason | Havana | Sept. 26-29 |
| Massac | Metropolis | Sept. 26-29 |
| McDonough | Macomb | Sept. 4- 9 |
| McHenry | Woodstock | Sept. 26-29 |
| McLean | Bloomington | Sept. 5- 8 |
| Menard | Petersburg | Aug. 29-Sept. 1 |
| Mercer | Aledo | Sept. 18-21 |
| Montgomery | Hillsboro | Sept. 26-29 |
| Montgomery | Litchfield | Sept. 19-23 |
| Moultrie | Sullivan | Sept. 19-22 |
| Ogle | Rochelle | Sept. 20-22 |
| Peoria | Peoria | Sept. 12-15 |
| Peoria | Pinckneyville | Oct. 4- 6 |
| Pike | Pittsfield | Sept. 26-29 |
| Pope | Golconda | Oct. 4- 7 |
| Putnam | Hennepin | Sept. 19-21 |
| Randolph | Sparta | Sept. 26-29 |
| Randolph | Chester | Oct. 17-20 |
| Rock Island | Rock Island | Aug. 28-Sept. 1 |
| Sangamon | Springfield | Sept. 18-22 |
| Schuyler | Rushville | Oct. 3- 6 |
| Shelby | Shelbyville | Sept. 26-29 |
| Stark | Tonlon | Sept. 26-29 |
| St. Clair | Belleville | Sept. 12-15 |
| Stephenson | Freeport | Sept. 18-23 |
| Union | Jonesboro | Sept. 12-15 |
| Vermillion | Catlin | Sept. 26-29 |
| Vermillion | Hoopeston | Sept. 12-16 |
| Vermillion | Danville | Sept. 19-22 |
| Wabash | Mt. Carmel | Sept. 25-29 |
| Warren | Monmouth | Sept. 12-15 |
| Whiteside | Sterling | Sept. 12-15 |
| Whiteside | Morrison | Sept. 12-15 |
| Williamson | Marion | Oct. 3- 6 |
| Winnebago | Rockford | Sept. 12-15 |

### IOWA.

| | | |
|---|---|---|
| Adair | Greenfield | Sept. 27-30 |
| Audubon | Exira | Oct. 3- 5 |
| Black Hawk | Waterloo | Sept. 27-29 |
| Buchanan | Independence | Oct. 3- 5 |
| Cass | Atlantic | Sept. 5- 7 |
| Cedar | Tipton | Sept. 12-14 |
| Cherokee | Cherokee | Sept. 6- 8 |
| Chickasaw | New Hampton | Sept. 27-29 |
| Clarke | Osceola | Sept. 27-29 |
| Clayton | McGregor | Sept. 27-29 |
| Davis | Bloomfield | Oct. 4- 6 |
| Decatur | Leon | Oct. 4- 6 |
| Delaware | Manchester | Sept. 26-29 |
| Des Moines | Burlington | Sept. 19-22 |
| Dubuque | Dubuque | Sept. 4- 8 |
| Dubuque | Estherville | Sept. 12-13 |
| Emmet | Estherville | Sept. 28-30 |
| Floyd | Charles City | Sept. 13-15 |
| Greene | Jefferson | Sept. 13-15 |
| Grundy | Grundy Center | Sept. 13-15 |
| Harrison | Little Sioux | Oct. 4- 6 |
| Henry | Mt. Pleasant | Sept. 5- 8 |
| Howard | Cresco | Sept. 26-28 |
| Jackson | Maquoketa | Sept. 26-29 |
| Johnson | Iowa City | Sept. 26-29 |
| Jones | Monticello | Aug. 29-Sept. 4 |
| Keokuk | Sigourney | Sept. 26-29 |
| Kossuth | Algona | Sept. 28-29 |
| Louisa | Wapello | Sept. 26-29 |
| Lucas | Chariton | Sept. 19-21 |
| Lyon | Rock Rapids | Oct. 4- 6 |
| Madison | Winterset | Aug. 29-Sept. 1 |
| Mahaska | Oskaloosa | Aug. 29-Sept. 1 |
| Marion | Knoxville | Sept. 26-28 |
| Marshall | Marshalltown | Sept. 6- 8 |
| Mills | Glenwood | Sept. 5- 8 |
| Mitchell | Osage | Sept. 28-30 |
| Monroe | Albia | Sept. 12-14 |
| Muscatine | Muscatine | Sept. 26-29 |
| Page | Clarinda | Oct. 3- 7 |
| Plymouth | Le Mars | Sept. 20-22 |
| Polk | Des Moines | Sept. 5- 8 |
| Poweshiek | Brooklyn | Sept. 21-23 |
| Ringgold | Mt. Ayr | Sept. 28-30 |
| Scott | Davenport | Sept. 4- 8 |
| Story | Nevada | Sept. 27-29 |
| Union | Afton | Oct. 4- 6 |
| Union District | West Liberty | Sept. 19-22 |
| Union Cedar | Mechanicsville | Sept. 19-22 |
| Van Buren | Keosauqua | Sept. 19-22 |
| Wapello | Ottumwa | Sept. 19-21 |
| Winneshiek | Hesper | Sept. 19-21 |
| Woodbury | Sioux City | Sept. 19-23 |

### MISSOURI.

| | | |
|---|---|---|
| Adair | Kirksville | Oct. 4- 8 |
| Boone | Columbia | Sept. 5- 9 |
| Callaway | Fulton | Aug. 29-Sept. 2 |
| Greene | Springfield | Sept. 5- 6 |
| Howard | Roanoke | Aug. 29-Sept. 2 |
| Jackson | Kansas City | Sept. 18-24 |
| Lewis | La Grange | Sept. 12-15 |
| Mississippi | Charleston | Sept. 26-30 |
| Montgomery | Montgomery City | Sept. 5-10 |
| Pike | Louisiana | Sept. 19-23 |
| Platte | Platte City | Sept. 5-10 |
| Saline | Marshall | Sept. 5- 9 |
| Saline | Miami | Aug. 29-Sept. 2 |

### KENTUCKY.

| | | |
|---|---|---|
| Bourbon | Paris | Sept. 5- 9 |
| Fayette | Lexington | Sept. 12-17 |
| Franklin | Frankfort | Sept. 19-23 |
| Nelson | Bardstown | Sept. 5-10 |

### MISSISSIPPI.

| | | |
|---|---|---|
| State Springs Grange | State Springs | Oct. 26 |

### TENNESSEE.

| | | |
|---|---|---|
| Washington | Jonesboro | Oct. 4- 6 |


THE

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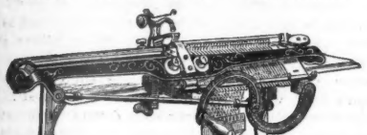

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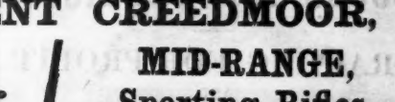

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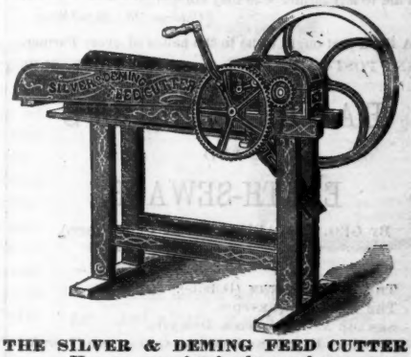


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*Seized fast the flowing mane,*
1 *And up he got in haste to ride,*
*But soon came down again.*

*Away went Gilpin, neck or naught;*
*Away went hat and wig;*
6 *He little dreamt, when he set out,*
*Of running such a rig.*

*Stop, stop, John Gilpin—here's the house—*
*They all at once did cry;*
8 *The dinner waits, and we are tired,*
*Says Gilpin—So am I.*

*For saddle-tree scarce reached had he,*
*His journey to begin,*
2 *When turning round his head he saw*
*Three customers come in.*

*Now see him mounted once again,*
*Upon his nimble steed,*
3 *Full slowly pacing o'er the stones.*
*With caution and good heed.*

*But finding soon a smoother road,*
*Beneath his well-shod feet,*
4 *The snorting beast began to trot,*
*Which galled him in his seat.*

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*So, turning to his horse he said,*
*I am in haste to dine;*
9 *'Twas for your pleasure you came here,*
*You shall go back for mine.*

*Whereat his horse did snort, as he*
*Had heard a lion roar,*
10 *And gallop'd off with all his might,*
*As he had done before.*

*Away went Gilpin, and away*
*Went Gilpin's hat and wig;*
11 *He lost them sooner than the first,*
*For, why?—they were too big.*

*So stooping down, as needs he must*
*Who can not sit upright,*
5 *He grasped the mane with both his hands,*
*And eke with all his might.*

*And now as he went bowing down,*
*His reeking head full low,*
7 *The bottles twain behind his back*
*Were shattered at a blow.*

*And so he did, and won it too,*
*For he got first to town—*
12 *Nor stopped till where he had got up*
*He did again get down.*

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